

Examining Implementation and Effects of a Diabetes Self-Management Education and Support

Program for African American Women Living in Boston Public Housing

By

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Ithar Hassaballa

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Chairperson: Stephen B. Fawcett, Ph.D.

Jomella Watson-Thompson, Ph.D.

Jerry Schultz, Ph.D.

Date Defended: April 10, 2015

The Thesis Committee for Ithar Hassaballa certifies
that this is the approved version of the following thesis:

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Chairperson Stephen B. Fawcett, Ph.D.

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Abstract

African Americans are disproportionately at risk for type 2 diabetes and have limited access to quality diabetes care. This research used an empirical case study design to examine the implementation of a coordinated diabetes program and its effects on diabetes-related clinical health outcomes. The target population was African American women with type 2 diabetes, who lived in the public housing units of Boston—Roxbury neighborhood. Through their Diabetes Care Coordination Program, Whittier Street Health Center's clinical team provided diabetes self-management education, support, and comprehensive diabetes clinical care using the Patient-Centered Medical Home (PCMH) model. Diabetes Health Ambassadors were mediators in community outreach, recruitment, and delivery of diabetes education and support to program participants. Rooted in behavior change strategies, the core intervention components included: 1) diabetes self-management education, 2) support for managing diabetes and distress, 3) enhancing access and linkage to care, 4) improving quality of care, 5) community organization, mobilization, and advocacy, and 6) health system and community transformation. A pre-test/post-test within-participant comparison was used to examine diabetes-related clinical health outcomes. The Diabetes Care Coordination Program was associated with modest improvements in diabetes-related clinical health outcomes for program participants ($n=148$). Results show statistically significant improvements in glycosylated hemoglobin or HbA1c ($p=0.016$), weight ($p=0.021$) and diastolic blood pressure ($p=0.027$) at the 0.05 level of significance ($p < 0.05$), using a paired t test. Using the PCMH model and Diabetes Health Ambassadors to deliver diabetes care has implications for future research and practice.

Keywords: Diabetes Self-Management Education, African American Women, Diabetes Health Ambassadors, Coordinated Care, Public Housing, Patient-Centered Medical Home

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Introduction

Type 2 Diabetes as a Public Health Problem

Diabetes is a serious, multilevel illness that is affecting communities locally and globally. According to the Centers for Disease Control and Prevention (CDC) Division of Diabetes Translation, 29.1 million individuals or 9.3% of the United States population has diabetes, with 21 million diagnosed and 8.1 million undiagnosed individuals (CDC, 2014). Diabetes was the 7th leading cause of death in the United States in 2010, accounting for a total of 234,051 deaths (CDC, 2014). Diabetes is defined as “a group of diseases marked by high levels of blood glucose resulting from problems in how insulin is produced, how insulin works, or both” (CDC, 2014). Type 2 diabetes affects multiple organs, and the marked increase in incidence of diabetes augments three massive burdens for individuals and society—physical, emotional, and financial burdens (Jack L., Jack N.H., & Hays, 2013).

There are serious physical burdens associated with diabetes. Because diabetes manifests itself in several body organs, those affected experience physical effects due to physiological changes. In 2011, 282,000 emergency room visits were due to hypoglycemia and 175,000 were due to hyperglycemia (CDC, 2014). Physical symptoms associated with hyperglycemia (high blood glucose) include increased thirst and urination, sweet odor to the breath, fatigue, agitation and confusion, and weight loss (Diabetes Care Services, 2015). Further, people with diabetes may develop serious complications such as heart disease, kidney failure, blindness, and amputations. Among adults with diabetes, cardiovascular disease death rates were 1.7 times higher between 2003 and 2006 (CDC, 2014). Between 2005 and 2008, 4.2 million had diabetic retinopathy—damaged blood vessels in the retina, which can cause blindness (CDC, 2014). In 2010, those diagnosed with diabetes had 73,000 lower limb amputations performed (CDC,

2014). One of the biggest physical burdens include diabetes-related amputations, which can lead to disability. Moreover, physical pain and other health conditions were reported as a barrier to physical activity (Batts et al., 2001; Eugeni, Baxter, Mama, & Lee, 2011). Another reported challenge among those with diabetes was medication side effects (Crabtree et al., 2014). A closely related and equally important burden that is associated with diabetes is emotional distress. Depression is high among those with diabetes (Li, Ford, Strine, & Mokdad, 2008). Spencer et al. (2006) found that diabetes-specific emotional distress among African Americans was due to daily stresses, lack of physician support, and perceived seriousness of the illness. Other emotional burdens included the confidentiality and fears of being stereotyped, experiencing low self-esteem, depression, and fear of diabetes were the most cited emotional barriers (Crabtree et al., 2014).

Using an incidence-based model, Narayan, Boyle, Geiss, Saaddine, and Thompson (2006) estimated that by 2050, the projected diabetes prevalence will increase by 48.3 million individuals in the U.S., which is a 166% increase. Currently, 11% of U.S. healthcare expenditures are directed towards diabetes-related care (Crabtree et al., 2014). In 2012, the estimated total cost of this illness was \$245 billion for both direct (\$176 billion) and indirect costs (\$69 billion) (CDC, 2014). Diabetes-related complications and healthcare utilization place financial burdens on the individual as well. For instance, Ward, Alvarez, Vo, and Martin (2014) found that in the year 2012, the cost of end of stage renal disease for an individual was \$71,714, blindness was \$2862, lower extremity amputation was \$9041, diabetic foot ulcers was \$2,147, and managing glycosylated hemoglobin (HbA1c) was \$176 to \$16,478 (contingent on the treatment option). The risk of hospitalization increased with the number and severity of diabetes-related complications, adding more to the financial burden (Young et al., 2008).

Although the prevalence of diabetes is high among the U.S. population, some racial and ethnic groups are disproportionately affected by this illness. According to national statistics from 2010 to 2012, 13.2% of African Americans were diagnosed with diabetes (CDC, 2014). African Americans not only have a higher prevalence of diabetes, but they are less likely to seek diabetes care and have routine diabetes-related visits with a healthcare professional (Tang, Brown, Funnell, & Anderson, 2008; Crabtree et al., 2014). Additionally, there are disparities in HbA1c levels between African Americans and Caucasians. African Americans have higher HbA1c levels, which contribute to the increased mortality and morbidity rates among this population (Kirk et al., 2006). Diabetes-related blindness is twice as high in African Americans than in Caucasians, while kidney disease is four times higher in African Americans (Feathers et al., 2007). Oster et al. (2006) found that African Americans were less engaged in healthy eating and physical activity (two diabetes-related behavioral risk factors) as compared to their Caucasian counterparts. African American women are at particular risk for diabetes and they have the poorest HbA1c control as compared to other groups (Tang, Brown, Funnell, & Anderson, 2008).

Factors contributing to type 2 diabetes. Diabetes does not have a single root cause, there are multiple risk factors that contribute to diabetes. Behavioral risk factors for diabetes include lack of physical activity (exercise), poor eating habits, and tobacco use, with the largest predictor being overweight (Hu et al., 2001). Some personal factors related to diabetes include sufficient knowledge about the disease and the associated skills to monitor diabetes-related behavioral and clinical health outcomes (Batts et al., 2001). An additional personal factor is genetics. Some individuals are genetically predisposed to diabetes and can be assessed through individual genotypic scores (Meigs, 2008). Although many researchers focus on race and

ethnicity as a risk factor, socio-economic status has a stronger association with diabetes prevalence than race and ethnicity (Link & McKinlay, 2009).

Environmental factors (e.g., poverty, living conditions, and lack of access to healthy foods, physical activity, and healthcare) also contribute to diabetes. Concentrated poverty and lower socio-economic status are factors that are associated with diabetes (Batts et al., 2001). Those with low socio-economic status are more likely to be diagnosed with diabetes and are less likely to engage in diabetes care due to financial costs (Crabtree et al., 2014). Batts et al. (2001) conducted a study among urban African American participants to determine diabetes care priorities and needs among those with type 2 diabetes. The authors found competing social priorities, such as childcare or elder care, prevented women from engaging in diabetes care. Together with economic barriers, living conditions and the built environment play a huge role in contributing to the disparity (Horowitz, Colson, Hebert, & Lancaster, 2004). One example of living conditions that further contributes to disparities are public units. Public housing units are living arrangements for those who have low-income and receive government assistance for housing. In the U.S., 4.8 million households receive government assistance on housing and 45% of public housing residents are African American (National Low Income Housing Coalition, 2012). Residents reported isolation and lack the appropriate transportation to get to where they needed (Eugeni, Baxter, Mama, & Lee, 2011). Those who have low-income and have diabetes may also lack the necessary resources in their built environment to engage in lifestyle behavior changes that can slow the progression of the illness (e.g., eat healthy food, engage in physical activity, obtain care from a primary care physician, etc.).

In low-income neighborhoods, there are typically barriers to accessing healthy food. Horowitz, Colson, Hebert, and Lancaster (2004) compared the availability and cost of healthy

food between a neighborhood of ethnic minorities and a bordering neighborhood of white affluent residents in New York City. They found that the affluent stores were 3.2 times more likely to carry the recommended healthy food items. In addition to food access, African Americans living in urban neighborhoods often lack the access to social and physical resources to address this illness due to residential segregation (William & Collins, 2001). Eugeni, Baxter, Mama, and Lee (2011) conducted in-depth interviews with African American public housing residents ($n=22$) to understand the barriers to physical activity and healthy nutrition. There were several lessons learned from the interviews that were related to the food environment and nutrition; grocery stores were inaccessible or were too expensive. The target population described healthy food negatively. Adding to the problem, participants associated physical activity with youth because youth had the available facilities (e.g., school gym) to engage in the target behavior (Eugeni, Baxter, Mama, & Lee, 2011).

Additional environmental conditions contribute to the complexity of addressing diabetes, especially among vulnerable populations. Focus groups of African American men identified institutional frustration with the health care system as a barrier to seeking care (Crabtree et al., 2014). There were three reasons for the frustration: 1) the doctors' lack of knowledge and experience; 2) lack of providers' communication skills; and 3) lack of organization and communication between the health system (e.g., clinic) and patients (Crabtree et al., 2014). Participants reported that doctors talk at them, not to them, as a factor in avoiding seeing a primary care physician. Another issue presented was the "subtle race bias in the provision of health care" and how that can contribute to poor diabetes control (Batts et al., 2001, p. 406). In addition, Hall, Francis, Whitt-Glover, Loftin-Bell, Swett, and McMichael (2013) found that hair care practices were a barrier to physical activity for African American women. Unlike genetics,

low socio-economic status, lack of healthy foods, physical activity opportunities, and diabetes care are potentially modifiable risk factors that can be changed so the target behavior is easier and more rewarding for populations experiencing health disparities.

Promising Approaches to Addressing Type 2 Diabetes

Despite the serious adverse effects of diabetes, a few evidence-based approaches to addressing diabetes have been found promising. These promising approaches include a Patient-Centered Medical Home (PCMH) model, diabetes self-management education and support, and the use of culturally appropriate community health workers in diabetes service delivery. The PCMH was developed to improve the way primary care is delivered at the systems level (Reid et al., 2010). This promising approach was endorsed in 2007, by professional organizations to assure “evidence-based medicine and quality improvement” (Reid et al., 2010). According to the U.S. Department of Health and Human Services the PCMH model encompasses five functions and attributes: 1) comprehensive care (e.g., includes patients’ physical and mental health needs); 2) patient centered (e.g., oriented towards the whole person, his or her unique values or preferences, and includes family); 3) coordinated care (e.g., coordination across the broader health system, including community services); 4) accessible services (e.g., shorter waiting times, and enhanced communication by email and phone calls); and 5) quality and safety (e.g., evidence-based medicine, shared decision-making, measuring patient satisfaction, and disseminating data publicly).

Primary care providers (PCPs) provide long-term diabetes care services to those experiencing diabetes. Parker et al. (2012) evaluated appointment-keeping behavior for patients with diabetes and found that poor appointment keeping was high, at 10%, among African Americans. Clinical health consequences of missed scheduled appointments included increased

HbA1c, cholesterol, and systolic blood pressure (Parker et al., 2012). Patients with low-income reported that the PCMH framework was useful in reducing wait time, and increasing the availability of providers to answer questions. The same patients however, reported gaps in primary care providers' delivery of essential information and resources to engage in self-care behaviors (Mead, Andres, & Regenstein, 2013). Mead, Andres, and Regenstein (2014) noted that although the PCMH model is effective, it alone cannot reduce the burden of chronic illnesses.

Diabetes self-management education (DSME) is an additional promising approach to addressing type 2 diabetes; it provides the knowledge and skills needed to engage in self-care behaviors to manage one's own diabetes (Haas et al., 2012). Self-management education coupled with training facilitates lifestyle changes, and changes in lifestyle can substantially delay the complications of diabetes (Gary, Hill-Briggs, Batts-Turner, & Brancati, 2005; Cené et al., 2013). The National Standards for Diabetes Self-Management Education included guiding principles based on existing evidence-based DSME research and practice. These principles included: 1) Diabetes self-management education as effective for improving clinical outcomes and quality of life; 2) Moving from presentations to theoretical-based empowerment models; 3) Culturally appropriate and age appropriate programs that incorporate behavioral and psychosocial strategies; 4) Incorporating ongoing support; and 5) Using behavioral goal setting (Funnell et al., 2009). Diabetes self-management education allows the patient to manage his or her own behaviors (e.g., healthy eating, physical activity, medication management, blood glucose monitoring, foot exams, eye exams, and stress management).

Although diabetes education is a promising approach, education and training alone are not enough to engage in self-care behaviors. Several studies have found that DSME was more effective in increasing self-care behaviors when delivered by culturally competent community

health workers (Gary, Hill-Briggs, Batts-Turner, & Brancati, 2005; Feathers et al., 2007). Tang, Brown, Funnell, and Anderson (2008) found that social support plays a critical role in the enhancement of diabetes self-management behaviors such as blood glucose monitoring, following a healthy diet, and engaging in physical activity. Additionally, patients with social support also experienced less diabetes-related stress. This study found that physicians were identified as the primary source of support, then spouse, and a family member. Men reported receiving more social support, were more satisfied with the support, and received more positive social support. By contrast, women reported receiving less social support, were less satisfied with their support source, and received more negative social support (Tang, Brown, Funnell, & Anderson, 2008). This finding calls for further examination of gender differences in diabetes-related support.

Batts et al. (2001) assessed priorities and needs of low-income, urban African American participants ($n=119$). Remarkably, 77% of visits addressed needs outside the diabetes-specific curriculum modules such as health insurance, finances, cardiovascular disease, etc. This finding called for a comprehensive approach to care, whereby patient concerns are addressed in addition to the diabetes-specific program components. Additionally, Crabtree et al. (2014) conducted focus groups among African American men ($n=25$) to understand their opinion about the delivery of diabetes interventions by community health workers. The men reported that community health workers can be a promising approach to increasing access and support for diabetes care. They preferred that the health worker is knowledgeable about diabetes and can relate to them by either having diabetes or having a family member with diabetes. Participants also wanted the community health worker to hold support groups and help them find the necessary resources. Participants expressed a need for individualized care and reported that just

because all participants are African American, it does not mean the intervention will prove successful for every individual (Crabtree et al., 2014).

The present study. A limited number of research studies have examined the implementation and effects of a coordinated care program for African American women with diabetes. This study is one of the first to examine a coordinated care model that used a Patient-Centered Medical Home approach to deliver diabetes self-management education and support to public housing residents, using culturally competent community health workers. This study examined the implementation of the Diabetes Care Coordination Program and its effects on diabetes-related clinical health outcomes.

Methods

Context

This study was implemented within the Whittier Street Health Center, a partner and grantee of the Bristol-Myers Squibb Foundation's Together on Diabetes (ToD) initiative. This collaborative project was completed in the context of the ToD initiative, Whittier Street Health Center (implementation partner), and the KU Work Group for Community Health and Development (evaluation partner).

Bristol-Myers Squibb Foundation's Together on Diabetes initiative. The mission of the Bristol-Myers Squibb Foundation is to "promote health equity and improve the health outcomes of populations disproportionately affected by serious diseases and health conditions" (Bristol-Myers Squibb Foundation, 2013). Consequently, Bristol-Myers Squibb (BMS) Foundation launched a \$57 million initiative to address type 2 diabetes among those experiencing health disparities in November of 2010. The ToD initiative aimed to improve the health outcomes of adults living with type 2 diabetes within the United States, and other

countries (e.g., China and India). More than 23 implementation partners or grantees from local organizations, health centers, and academic institutions were funded by the BMS Foundation to address type 2 diabetes using evidence-based and promising strategies (e.g., patient self-management education, community-based support services, and community mobilization). One of the funded implementation partners was Whittier Street Health Center, the focus of this study.

Whittier Street Health Center as a Together on Diabetes partner (grantee). Located in the Roxbury neighborhood of Boston, Massachusetts, the Whittier Street Health Center was funded by the BMS Foundation to connect and re-engage African American women with type 2 diabetes in coordinated care through the Diabetes Care Coordination Program. This program sought to reach 150 African American women living in public housing units in Roxbury—a low-income and primarily African American neighborhood. Whittier Street engaged program participants through community outreach and recruitment by community health workers known as Diabetes Health Ambassadors along with the outreach nurse. Once the Ambassadors referred women to Whittier Street, they met with the coordinated clinical staff (e.g., patient navigator, diabetes case manager, high risk nurse case manager, primary care physician, clinical pharmacist, registered dietitian, integrated behavioral health specialist). Staff then engaged participants in the Diabetes Care Coordination Program—a coordinated, comprehensive, and personalized diabetes self-management education and support program that used the PCMH model. This program was implemented from November 2011 to June 2013 and was evaluated using a participatory evaluation approach by stakeholders (e.g., BMS Foundation, the KU Work Group staff, and Whittier Street’s clinical team).

Evaluation of the Together on Diabetes Initiative

The Work Group for Community Health and Development (KU Work Group) at the University of Kansas was selected by the BMS Foundation to evaluate the implementation and related effects of the ToD initiative. The KU Work Group designed and developed an Online Documentation and Support System (ODSS) to monitor and evaluate grantee-specific information on project activities towards the intended outcomes. The KU Work Group offered technical support and consultation using the ODSS to facilitate: a) Documentation (capture) of activities related to program implementation; b) Coding of these activities using an established scheme (e.g., Services Provided, Community/System Changes, Development Activity, Dissemination Efforts, or Resources Generated, further described in the ToD Evaluation Codebook, see Appendix A); c) Characterization of the attributes of the activity (e.g., by goal addressed, strategy used, intervention component, etc.); and d) Communication of findings through visual graphs, and ongoing sensemaking or systematic reflection of project implementation. Fawcett and Schultz (2008), Watson-Thompson, Fawcett, and Schultz (2008), and Collie-Akers, Schultz, Carson, Fawcett, and Ronan (2009) used a similar evaluation process as the present study. To assure systematic measurement, all project documenters were trained using the ToD Evaluation Codebook that included brief definitions of types of activities, coding instructions, examples, and non-examples of project activities. In addition to the monitoring and evaluation system, the KU Work Group, in collaboration with the BMS Foundation, developed a logic model for the ToD initiative.

Logic model. A logic model is a clear visual illustration of the inputs and activities implemented throughout the project period to achieve the intended health outcomes (Community Tool Box, 2014). The Whittier Street team was involved in the development of the logic model

(see Appendix B) and highlighted elements of particular importance to their project (e.g., lay health workers, group visits and supports, and community outreach and screenings). This logic model was used to plan, implement, and evaluate information about the Whittier Street's Diabetes Care Coordination Program over the project period. Used as a roadmap, the logic model included the Diabetes Care Coordination Program's context, inputs, activities, outputs, and intended outcomes. Whittier Street Heath Center staff, grant funders, community partners, and evaluation partners referred to the logic model to follow the *logic* of the ToD project. The Whittier Street logic model can be found in Appendix B.

Monitoring and evaluation plan. The KU Work Group, with guidance from BMS Foundation, developed a monitoring and evaluation plan to objectively measure the implementation of activities over the duration of the project period. The BMS Foundation identified ten project goals for the ToD initiative. For each of the ten goals, specific evaluation questions and related indicators were developed to monitor and assess progress towards these goals. Table 1, below, includes the ToD goals developed by the BMS Foundation and a related indicator for each goal. A complete ToD Monitoring and Evaluation Plan can be found in Appendix C, which includes the ten goals, related evaluation questions, and indicators.

Table 1

Together on Diabetes Goals and Related Indicator

Together on Diabetes Goal	Related Indicator
1) Improve diabetes self-management education	Percent of patients adhering to medication plans
2) Improve access or linkage to care	Number of community support referrals
3) Improve quality of care	Number of new diabetes related services integrated into diabetes care (e.g., integration of mental/behavioral health specialist)
4) Engage in community organization, mobilization, and advocacy	Number of community outreach sessions to deliver nutrition education
5) Facilitate changes in health systems and	Number of new documentation protocols

communities	developed and implemented to enhance care coordination
6) Improve self-management, behavioral, and clinical health outcomes	Number of patients with reduced HbA1c
7) Improve population health	Number of African American women living in public housing units engaged and retained in the DCCP
8) Improve health equity	Number of Diabetes Health Ambassadors selected and trained
9) Engage in dissemination efforts	Number of conference presentations delivered on DCCP
10) Sustain the initiative or intervention components	Number of resources generated to sustain project activities

[Note. Whittier Street Health Center focused on goals 1, 2, 3, 4, 5, 6, and 8 as part of the ToD initiative.]

Implementation Setting and Partners

The Roxbury neighborhood. Roxbury is an underserved neighborhood in Boston, Massachusetts, with high rates of poverty, violence, and disease (Rahman et al., 2008). The total population of Roxbury in 2012 was 43,839 residents, as compared to 580,337 total residents in Boston (Boston Redevelopment Authority, 2014). The poverty rate in Roxbury was 36% in 2012 (Boston Redevelopment Authority, 2014), while the overall United States poverty rate was 15.9% (U.S. Census Bureau, 2013). In the three Roxbury areas served by this program, an average of 31% of residents live below the poverty line. By zip code, these areas experienced poverty at the following rates: 02119, 34.5%; 02120, 43.2%; and 02121, 30.3% (Boston Public Health Commission, 2014). In addition to poverty, Roxbury is a neighborhood with high rates of violence and a crime index 22% higher than the Boston average (Area Vibes, 2014).

Additionally, African Americans comprise the majority of residents living in Roxbury, making up 62.3% of the total population (Area Vibes Demographics, 2015). African Americans are disproportionately at risk for discrimination and social exclusion (Taylor & Turner, 2002). In a survey conducted by Rahman et al. (2008), 72% of survey respondents ($n=101$, 75% African American) reported having experienced discrimination in Roxbury. Many minorities in Boston

live in public housing units—low-income subsidized housing offered by the government.

Roxbury residents in public housing experience a number of barriers related to access to basic services like fresh fruits and vegetables (Fulp, McManus, & Johnson, 2009). In addition to poverty and social exclusion, Roxbury residents also experience disparities related to healthcare.

Roxbury residents ($n=101$) reported a variety of medical conditions (Rahman et al., 2008). Thirty-nine percent of participants reported having high blood pressure, 38% high cholesterol, 38% depression or anxiety, 38% overweight or obese, 33% current smokers, and 22% with diabetes (Rahman et al., 2008). According to a Kresge Foundation-funded community needs assessment conducted by the Whittier Street Health Center (2010 to 2011), public housing residents living in Roxbury are three times more likely to suffer from type 2 diabetes than other Boston residents (Whittier Street Health Center, 2013).

Implementation setting. Whittier Street Health Center is a Federally Qualified Community Health Center (FQHC) that was established over 80 years ago and currently serves over 25,000 patients annually. This health center is situated in the heart of the Roxbury neighborhood, in the middle of five public housing developments. Whittier Street Health Center provides high quality, reliable, and accessible primary healthcare through its 40 core services. Whittier Street Health Center staff are dedicated to health equity and serve one of the densest convergence of public housing units (3500 units in 17 developments); 83% of Whittier Street patients live in public housing units. This health center offers culturally appropriate services in 21 different languages including Arabic, Haitian/Creole, Portuguese, Somali, Spanish, Swahili, and other languages. Forty-five percent of Whittier Street Health Center patients are best served in a language other than English, according to a survey implemented by Whittier Street staff in 2010.

Additionally, Whittier Street Health Center is an American Diabetes Association (ADA) certified center for excellence in diabetes self-management. Through the BMS Foundation funded initiative, Whittier Street offered African American women with type 2 diabetes free primary care and preventive services including access to primary care physicians, eye and dental clinics, clinical pharmacists, registered dietitians, a foot specialist (podiatrist), and an ADA certified diabetes educator. Whittier Street provided community-based services in partnership with public housing developments (Boston Housing Authority) to deliver immediate access, referrals, and navigation services through outreach activities by Ambassadors. Whittier Street's organizational goals aligned with that of the BMS Foundation in addressing health disparities.

Whittier Street Health Center's Diabetes Care Coordination Program (DCCP) had five target objectives that were highlighted within their ToD proposals and reports obtained through document abstraction. The first goal was to identify and connect African American women who lived in public housing and had type 2 diabetes to comprehensive, coordinated diabetes care through outreach by Diabetes Health Ambassadors. Culturally competent Ambassadors were defined as those who had the same racial or ethnic background as the people they served, lived among the population, and understood the everyday challenges experienced by the target population (personal communication, 2015). This aligns with two ToD goals: a) to improve health equity (ToD goal 8) and b) to engage in community organization, mobilization, and advocacy (ToD goal 4). Second, the DCCP aimed to identify African American women who were lost to follow-up and re-engage them in diabetes care through outreach by the Ambassadors by improving access/linkage to care (ToD goal 3). Third, the DCCP sought to assist and motivate African American women to control their disease by developing and meeting their diabetes self-management goals (e.g., increase physical activity and healthy nutrition in order to reduce

glycosylated hemoglobin (HbA1c), weight, and blood pressure) (ToD goal 1). Fourth, provide patient-specific diabetes self-management education and behavioral health support through the DCCP. Fifth, the project aimed to improve clinical health outcomes (e.g., HbA1c, BMI, weight, systolic blood pressure, diastolic blood pressure, LDL cholesterol, and total cholesterol) (ToD goal 6).

Implementation partners. Whittier Street Health Center engaged multiple Roxbury-based community partners to implement the Diabetes Care Coordination Program. Partners included: 1) Boston Housing Authority; 2) Body by Brandy; 3) Boston YMCA; 4) The Bell Tower Food Truck; and 5) Kresge Foundation. First, the Boston Housing Authority was a key collaborator in assuring access to public housing residents, where they lived. The Boston Housing Authority assisted Whittier Street staff in planning outreach activities, implementing diabetes self-management education sessions, and holding events within the vicinity of the public housing units. This organization offers affordable housing to more than 58,000 residents in the Boston area (Boston Housing Authority, 2014). Second, Body by Brandy, provided physical activity opportunities such as dance, aerobic, and weight training classes for program participants during the first year of the project. Third, the Boston YMCA provided physical activity access and opportunities for the remainder of the project period. Fourth, the Bell Tower Food Truck provided fresh produce at a subsidized price for Boston residents. This partner provided access to fresh fruits and vegetables for women living in the public housing units three times a week—Mondays, Wednesdays, and Fridays. Fifth, the Kresge Foundation provided resources for a community needs assessment within the target area before the ToD initiative was launched. This assessment affirmed the need to address diabetes in Roxbury.

Diabetes Care Coordination Program participants. There were 160 participants in the

Diabetes Care Coordination Program offered by Whittier Street Health Center. The participant selection criteria included: a) African American women, b) with type 2 diabetes, and c) who lived in public housing units. Diabetes Health Ambassadors along with an outreach nurse screened a total of 980 women for blood glucose, a diabetes clinical indicator. Of those, 340 women presented elevated blood glucose and were referred to Whittier Street Health Center for additional screenings and preventive care services. A total of 175 participants were recruited and enrolled within the Diabetes Care Coordination Program. Of those, 160 were retained until the completion of the program. Diabetes-related clinical health outcomes were computed for 148 participants, with assessments at baseline and at 16 months. Some patients were not included within the data analysis because they were short of the 16-month interval. Participants were between the ages of 26 and 85 years old. Program participants provided informed consent, and had the right to withdraw at any time during the 16-month intervention. The Quality Assurance Committee at Whittier Street Health Center protected the rights of participants, assured the safety of intervention procedures, and assured the quality of care received by each participant. The committee was comprised of patients and Whittier Street senior leaders.

Study Design and Research Questions

The design used to conduct this research was an empirical case study design. An empirical case study design is a research method that includes an in-depth examination of the *case* in its natural context, especially when the “boundaries between the phenomenon and context may not be clearly evident” (Yin, 2014, p.16). The aim of this research was to examine the implementation of the Diabetes Care Coordination Program and its effects on associated behavioral and clinical health outcomes. There were four questions that were examined through this research:

- 1) To what extent did the Whittier Street Health Center initiative serve as a catalyst for community and systems changes within the Roxbury neighborhood of Boston?
- 2) What were the effects of the Diabetes Care Coordination Program on the amount and kind of services provided?
- 3) Did the effects of the Diabetes Care Coordination Program generalize to diabetes-related clinical health outcomes among program participants?
- 4) What specific roles did the Diabetes Health Ambassadors play in the delivery of diabetes-related services as part of the Diabetes Care Coordination program?

Measurement

There were several instruments that were used to capture the full Whittier Street project implementation. First, document abstraction was used to capture the activities implemented through the Diabetes Care Coordination Program. The KU Work Group reviewed Whittier Street's documents as part of the evaluation process. The documents included proposals, reports, conference presentations, photos, supplemental documents, and anecdotes shared with the BMS Foundation. Second, Whittier Street staff used an online documentation system (ODSS) to systematically capture project activities. Third, the BMS Foundation's annual summit in Atlanta, GA provided the space to further learn from grantees through in-person discussions, workshops, as well as oral and poster presentations. Fourth, key informant interviews; semi-structured discussions were conducted with Whittier Street staff using a set of questions to capture additional qualitative data. Key informants provided a detailed account of the specific elements of the intervention, how it was delivered (mode of delivery), the goals addressed by each activity, and the intended clinical health outcomes of the activities. The key informant interview protocol can be found in Appendix D. Fifth, Whittier Street staff collected all seven clinical

health outcomes for program participants using Centricity, a medical health record system. Finally, as part of the participatory evaluation, the KU Work Group facilitated sensemaking sessions (systematic reflection) with Whittier Street staff using graph displays from the online monitoring and evaluation system.

Measurement of project implementation and output. Whittier Street Health Center staff used the Online Documentation and Support System (ODSS), a monitoring and evaluation system developed by the KU Work Group to support the participatory evaluation (Fawcett & Schultz, 2008). Whittier Street staff members were trained to use this online documentation system to capture, code, characterize, and communicate about the implementation and outcome of the Diabetes Care Coordination Program activities. The Whittier Street documenter served as the primary observer, while a KU Work Group staff member served as the secondary observer. With technical support from the KU Work Group, the Whittier Street Health Center team: a) *Captured* instances of community/organizational changes and services provided (e.g., what activity was implemented, when, by whom, toward what goal; b) *Coded* by type of activity (e.g., whether a service provided or community change, using activity coding instruction); c) *Characterized* the activity (e.g., by goal addressed, strategy used, or sector involved in activity); and d) *Communicated* progress using graphs of the unfolding of services provided over time; and shared sensemaking of the data (e.g., what are we seeing, what does it mean, and implications for adjustment).

KU Work Group staff members provided feedback, technical support, and consultation in using the ODSS. A designated Whittier Street Health Center staff documented all project activities from the onset to the completion of the initiative. A KU Work Group staff reviewed monthly ODSS entries, coded the activities (events/accomplishments) for reliability, and

provided feedback through monthly reports based on ToD codebook definitions (October 2011 to June 2013). The minimum standard for inter-observer reliability for scoring activities was set at 80%, and agreement rates higher than 80% were considered reliably scored. Below are the definitions of the codes. Appendix A includes the complete ToD Evaluation Codebook.

Measurement definitions for DCCP activities include:

- *Community/Systems Changes* (CCs)—the number of new programs, policies, and practices (e.g., new documentation protocol for foot exams).
- *Services Provided* (SPs)—the delivery of information, training, or other valued goods to the target population (e.g., self-management classes, workshops, screenings, etc.).
- *Developmental Activities* (DAs)—actions taken to enable the group to reach its goals (e.g., developing assessments, evaluation report, meetings, etc.).
- *Dissemination Efforts*—conveying information about the initiative and its accomplishments to audiences outside the community to be served (e.g., conference presentations, publications, etc.).
- *Resources Generated*—acquisition of resources for the initiative through grants, donations, or gifts in kind (e.g., funding, donated materials, and donated time).
- *Other*—items for which no code have been created (e.g., phone calls to set up a meeting).

After the KU Work Group staff member reviewed and coded monthly ODSS activities, inter-observer reliability was measured. Another staff member from the KU Work Group independently coded 38 entries or 30% of the total entries ($n=126$). Inter-observer agreement was calculated by dividing the number of entries coded independently by both observers (34), by the total number of entries both documenters coded (38). The inter-observer agreement for the

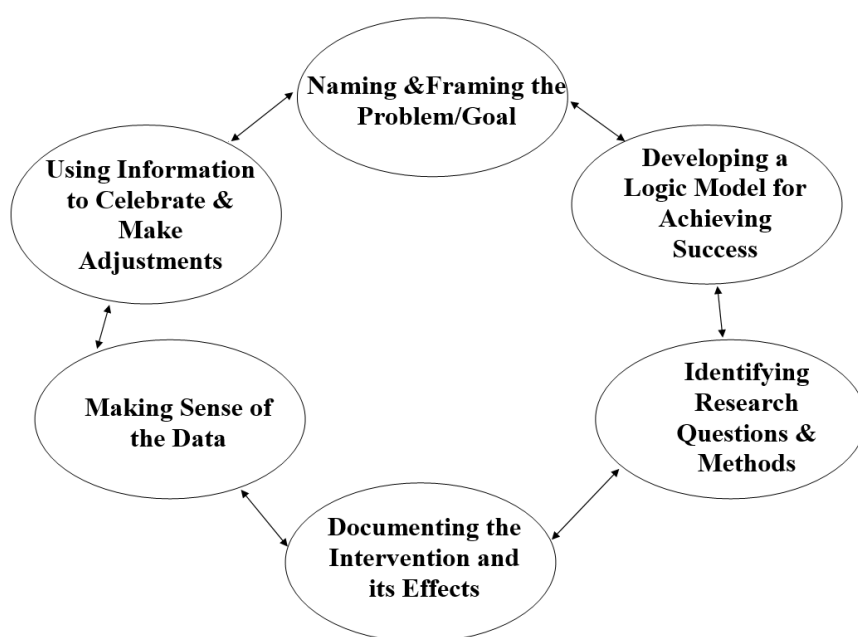
Diabetes Care Coordination Program activities was 89.5%, which exceeded the 80% minimum standard established for inter-observer reliability. After the implementation data was entered, it was time to make sense of the data collectively.

Sensemaking sessions. The online monitoring and evaluation system yielded real-time graphs of implementation; visual representations of key activities including the unfolding and distribution of community/system changes, services provided, and other project-specific implementation measures using a simple time series design and pie charts. As part of the participatory evaluation, KU Work Group staff facilitated sensemaking sessions with Whittier Street staff to communicate and systematically reflect on what they were seeing in the data, what it meant, and areas in need of adjustments (Fawcett & Schultz, 2008). This consisted of using real-time graphs and dialogue questions (available within the ODSS) to reflect collaboratively on: 1) What are we seeing (e.g., the graph shows a marked increase in the delivery of services following the onset of the Diabetes Care Coordination Program in October 2011); 2) What does it mean (e.g., this increase was associated with delivery of services at public housing units); 3) What are the implications for adjustments (e.g., to increase program enrollment and retain participants, more Diabetes Health Ambassadors should be recruited and trained to provide diabetes self-management education and support). Sensemaking was also used to celebrate successes (e.g., enrolling the target number of program participants). Figure 1, below, displays the participatory evaluation framework that was used as part of the ToD initiative. This same framework has been used in a previous participatory evaluation project (Fawcett, Boothroyd, Schultz, Francisco, Carson, & Roderick Bremby, 2003). The process began by the BMS Foundation (and community partners) naming and framing the problem of type 2 diabetes. The KU Work Group, in collaboration with several stakeholders developed a logic model and

identified research questions. Whittier Street staff documented the activities within the ODDS and also documented clinical health outcomes within Centricity. Shared sensemaking was conducted, and the information obtained was used to make adjustments and celebrate project successes.

Figure 1

Participatory Evaluation Framework for Together on Diabetes Initiative



[Note. This model was used to guide the participatory evaluation of the BMS Foundation funded initiative (Fawcett, Boothroyd, Schultz, Francisco, Carson, & Roderick Bremby, 2003).]

Measurement of clinical health outcome measures. Whittier Street Health Center staff collected seven clinical measures for all participants through Centricity. Data collection was completed both pre (at baseline) and post exposure to the Diabetes Care Coordination Program in order to measure the effects of the intervention on clinical health outcomes. The seven clinical health outcomes that were captured were: 1) Body Mass Index; 2) Weight; 3) Systolic blood pressure; 4) Diastolic blood pressure; 5) HbA1c; 6) LDL cholesterol; and 7) Overall cholesterol.

First, Body Mass Index (BMI) was calculated using weight (in pounds) divided by height (in inches squared). BMI is an indicator of body fatness; a BMI of 25.0 or above is considered overweight and a BMI of 30.0 or above is considered obese (CDC, 2014). Second, weight, a measure of one's heaviness, was observed through a weight scale, and height was measured using a height rod.

Third, systolic blood pressure refers to pressure in blood vessels as the heart beats. Fourth, diastolic blood pressure is pressure in vessels as the heart rests between beats. A sphygmomanometer (a cuff) was wrapped around the patients' upper arm to measure blood pressure. Blood pressure is interpreted as (systolic/diastolic) and high blood pressure is set at 140/90mmHg or above (Mayo Clinic, 2014). Fifth, glycosylated hemoglobin (HbA1c) was measured using a blood test. Whittier Street's laboratory staff conducted lab tests to monitor the average blood glucose level. An HbA1c test measured the percent of hemoglobin—a red blood cell protein—containing sugar for the past three months (CDC, 2014). Higher values indicate more risk; uncontrolled diabetes is viewed as 9.0% or higher (14% is the highest possible). Sixth, low-density lipoprotein (LDL) cholesterol was measured using a blood test. According to the American Heart Association, LDL cholesterol is the bad cholesterol that can block arteries; 160mg/dL is considered high. Seventh, the overall cholesterol is a measure of LDL cholesterol plus high-density lipoprotein (HDL) cholesterol—the good cholesterol that prevents blocked arteries (American Heart Association, 2014). A total cholesterol of 240mg/dL and above is considered high.

In addition to the clinical health outcomes, Whittier Street Health Center also measured a few behavioral health outcomes through their patient medical record. Behavioral measures included: a) percent of participants who attended annual foot exam; b) percent of participants

who attended annual eye exam; c) percent of participants engaged in diabetes self-management behaviors; and d) percent of participants who accomplished at least one of their self-management goals.

Data analysis of clinical health outcomes. Clinical health outcomes were analyzed through a pre-test, post-test comparison using STATA Version 12. A statistical significance test was conducted using a paired t test to examine within-patient clinical health outcomes. The mean interval between the pre (baseline) and post measurements was 16 months. Data were calculated based on a 0.05 level of significance according to the mean change. Using a one sided t test, Cohen's d was computed to measure effect size.

Intervention Design

Diabetes Health Ambassadors. Because of the difficulty of engaging vulnerable populations, Whittier Street staff sought to assure an indigenous and culturally competent workforce from the neighborhood to effectively engage community members in managing their own health. Whittier Street's primary care providers recruited community health workers, known as Diabetes Health Ambassadors for this role. Community Health Workers are defined as "lay members of communities who worked as employees or as volunteers in association with the local health care system in both urban and rural environments and usually share ethnicity, language, socioeconomic status, and life experiences with the community members they serve" (Health Resources and Services Administration, 2011). Diabetes Health Ambassadors were mediators in the delivery of diabetes self-management education and support.

Recruitment of neighborhood Ambassadors. Whittier Street's clinical team recruited African American women with controlled diabetes. The staff also posted a "Community Health Ambassador" job position at different sites within the target community (e.g., fliers at public

housing units). Neighborhood Ambassadors were all paid above minimum wage and dedicated 20 hours per week for community outreach and patient support. Diabetes Health Ambassadors had to meet several criteria: a) be an African American woman; b) with type 2 diabetes; c) their diabetes be under control (HbA1c of 8.0 or below—defined by Whittier Street clinical team); d) live in a public housing unit within the Roxbury neighborhood; e) be skilled in delivering motivational presentations; f) want to help other women control their diabetes; and g) have knowledge of available community resources.

Diabetes Health Ambassadors had deep knowledge and experience of the target population's needs. Because they were members of the community, they knew when and where outreach activities could be implemented. They had knowledge about community gatherings and events as well as available spaces where self-management education classes could be held within community settings. Ambassadors were the link between Whittier Street Health Center and the Boston Housing Authority, which was an important partner in addressing diabetes in Roxbury's public housing units. They guided the Whittier Street team in the recruitment of African American women for the Diabetes Coordinated Care Program.

Training and capacity building of Ambassadors. Once the Diabetes Health Ambassadors were recruited, they underwent a series of trainings before they were engaged in community outreach and support services. Recruited Ambassadors were trained on: 1) how to conduct clinical measurement; 2) how to provide patient support; and 3) how to engage with cultural competence. Ambassadors were first trained through the University of Massachusetts as part of an online health navigator training. This training taught Diabetes Health Ambassadors how to help patients enroll for health insurance, in addition to basic public health information (e.g., types of health screening patients should receive). Because the Diabetes Health

Ambassadors needed context-specific training, the certified diabetes educator at Whittier Street developed a curriculum that offered diabetes information that met the needs of African American women living in Roxbury. Whittier Street staff used the curriculum, which integrated local practices, diet, and particular social barriers to diabetes self-management. Ambassadors received ongoing (monthly) training through the duration of the BMS Foundation funded initiative to assure high quality diabetes education and support for program participants.

Delivery of services by neighborhood Ambassadors. After the Ambassadors were recruited and trained, they had several responsibilities related to community outreach and patient support. Six outreach teams systematically conducted outreach in the community. Outreach activities were scheduled on a shared calendar accessible to all six outreach teams; all six groups knew when, where, and with whom they needed to conduct community outreach activities. First, Ambassadors conducted outreach activities to engage women who had been diagnosed as well as women who had yet to be diagnosed. They conducted door-to-door outreach activities in public housing units to encourage women to get screened at the near-by Whittier Street Health Center. Later, they attended community events such as coffee hour at local public housing units, to conduct onsite blood pressure and glucose screenings as well as diabetes self-management education. Other community sites for outreach and recruitment were local churches and mosques to engage people where they prayed. Other settings included community festivals, farmers markets, parks, and hair salons.

Through these screenings, some women found out they had diabetes and were referred to diabetes care at Whittier Street Health Center. Others learned they had pre-diabetes, but still sought support for diabetes preventive behaviors such as healthy eating and engagement in physical activity with support from neighborhood Ambassadors. Ambassadors developed a

rapport or a personal relationship with program participants. They created a safe space for patients to discuss barriers to diabetes self-management. Ambassadors were trained to also ask participants about additional supports that they needed, and then inked program participants to community support services. Services included health insurance enrollment, wellness centers, primary health care, financial support, nutrition support, housing support, as well as behavioral health supports.

Once these barriers were addressed, the Ambassadors assisted program participants in diabetes self-management education and support. This was done at both Whittier Street Health Center and settings within the nearby public housing units. Diabetes Health Ambassadors worked alongside the certified diabetes educator to educate and train women in diabetes self-management skills. This training included specific instructions and modeling on how to measure one's blood glucose (using a glucometer) with immediate feedback. The certified dietitian modeled how to cook healthy foods and engaged women through hands-on food preparation. Participants also received instructions on ways to increase physical activity. Ambassadors made follow-up phone-calls to patients and prompted them to take steps towards achieving their self-management goals, and sometimes called to just say hello. To assure continued high-quality work performance, Diabetes Health Ambassadors received ongoing training for clinical measurement, patient support, and cultural competence. Appendix E includes a full job description of the Diabetes Health Ambassadors.

Intervention: Diabetes Care Coordination Program

Whittier Street Health Center implemented the Diabetes Care Coordination Program (DCCP) to provide high quality, accessible care for African American women living in low-income public housing units. The DCCP included the Patient Centered Medical Home (PCMH)

model and Diabetes Self-Management Education and Support (DSME/S) as two promising approaches to improve behavioral and clinical outcomes for those with diabetes. The specific intervention components, elements, and modes of delivery are included in this section.

Patient-centered medical home model. The PCMH is a gold standard for how primary care is to be delivered. It emphasizes comprehensive care that addresses the array list of complications due to type 2 diabetes. Whittier Street Health Center provided patient-centered diabetes care, meaning that project participants were the primary decision makers about their own diabetes care (e.g., group medical visits or private medical visits). Project participants were linked with a diabetes nurse case manager who coordinated their care, treatment options, preventive behaviors to address, and provided additional clinical and behavioral/emotional support services located at Whittier Street. In addition, patients kept track of their own diabetes management through a patient passport that included the last date of a primary care visit, the next appointment, self-management behaviors to be implemented, and clinical measures (e.g., blood glucose checks, engagement in physical activity, consuming healthy nutrition, examining feet, etc.). Family members of program participants were encouraged to participate in DCCP visits, DSME classes, and community events as a support system for their loved ones.

This model called for coordination within Whittier Street's health system by assuring open communication among the clinical team through bi-weekly meetings about each individual patient's progress and needs. The Whittier Street team sought to understand patients' unique needs related to their language, culture, values, and preferences through regular meetings with the Diabetes Health Ambassadors. The PCMH team included: 1) a patient navigator, 2) a diabetes nurse case manager, 3) an American Diabetes Association (ADA) certified diabetes educator, 4) a registered dietitian, 5) a clinical pharmacist, 6) an integrated behavioral health

specialist, 7) a primary care physician, 8) an outreach nurse, 9) Diabetes Health Ambassadors, 10) a high risk nurse case manager, and 11) a manager of quality assurance.

Each of the team members played a critical role in providing the necessary services based on their specific expertise. First, the patient navigator was tasked with patient enrollment and providing patients with their self-management passport. Second, the diabetes nurse case manager provided initial assistance in behavioral goal setting, treatment options, and continued to assure care coordination for each patient. The nurse also assured that the patients understood their status and were working towards their self-management goals. Third, the certified diabetes educator led program participants through the six-week, 12-session DSME course with help from the Ambassadors and other clinical staff, depending on the session topic. Fourth, the registered dietitian provided nutrition information, and healthy cooking demonstrations for program participants. Fifth, the clinical pharmacist provided participants with the necessary information on medications, directions for taking the medications, as well as the importance of adhering to diabetes medications. Sixth, the integrated behavioral health specialist (a later addition to the team) provided guidance on how to manage life stressors and how to increase health behaviors despite the physical, social, and financial barriers. Seventh, the primary care physician saw the patient once a month and kept track of clinical changes over time. The primary care physician referred patient who showed high glucose levels to the high-risk nurse case manager. Eighth, the outreach nurse accompanied the Ambassador during outreach screenings. Ninth, the Ambassadors met patients where they were and conducted outreach, diabetes education, and support to the community and program participants. They also accompanied program patients during visits with the different clinical staff members to provide additional support, particularly if a patient attended appointments without a family member. Tenth, the high-risk nurse case

manager worked one-on-one with program patients who had serious diabetes complications. Finally, the manager of quality assurance assured the safety of intervention procedures and employed performance improvement. The manager of quality assurance used performance measures (checklists) to evaluate the DCCP and reported participant clinical health outcomes to the Massachusetts League of Patient Centered Medical Homes, on a monthly basis.

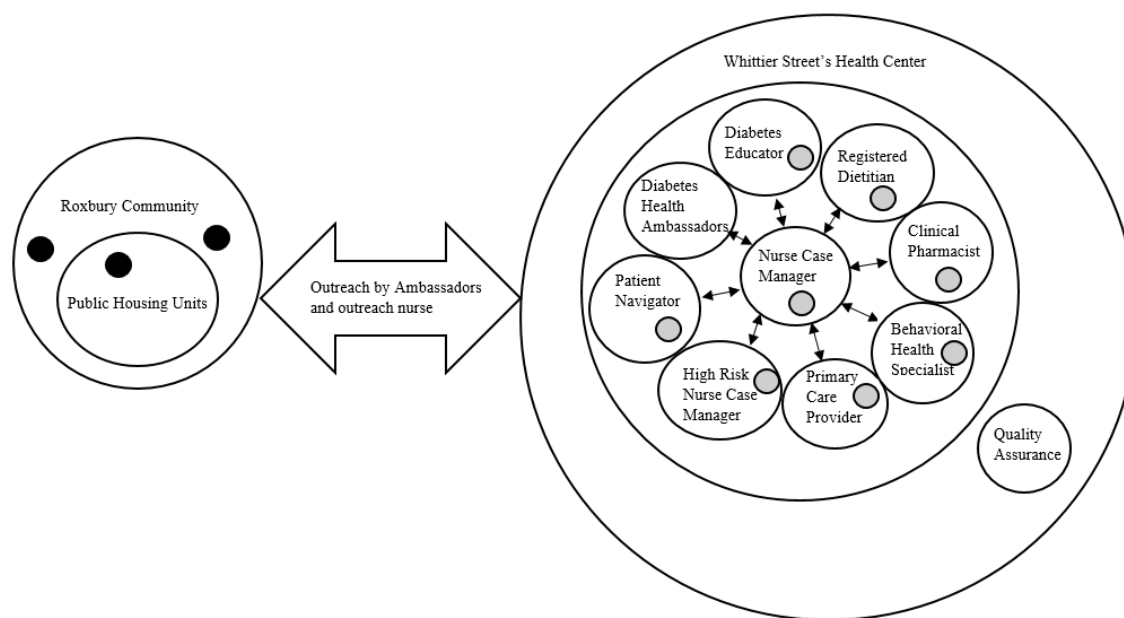
Diabetes self-management education and support. After their recruitment by neighborhood Ambassadors, African American women participants were screened to assess their diabetes status through a blood test. Once a participant was classified as having diabetes, she was referred to the navigator for program enrollment and received her patient passport. Then, the Ambassador addressed possible barriers to diabetes care (e.g., access to food, health insurance, etc.). Participants were then referred to the diabetes case manager to discuss treatment options and assisted patients in setting clear, measurable goals. The nurse case manager then referred participants to the certified diabetes educator for the DSME course, which started with basic diabetes information. The DSME curriculum included the following topics: 1) Diabetes disease process and treatment options; 2) Incorporating nutritional management into one's lifestyle; 3) Incorporating physical activity into one's lifestyle; 4) Using medications safely and for maximal therapeutic effects; 5) Monitoring blood glucose/other parameters and using results; 6) Preventing, detecting, and treating acute complications; 7) Preventing, detecting, and treating chronic complications; 8) Developing personal strategies to promote health and behavior change; and 9) Developing personal strategies to address psychosocial/emotional concerns. The DSME course was interactive and discussion based, with hands-on training of blood glucose measurement and cooking demonstrations. Healthy food was offered after each course session, this was to provide another opportunity for program participants to provide support for one

another. Patients were also provided a safe environment to ask questions about diabetes and its related complications. After the completion of the DSME course, patients visited the Whittier Street Health Center facility bi-weekly to attend the diabetes support group, and in two weeks, visit with the clinical staff. This was done until program completion (June 2013).

Throughout the duration of the DSME course, Ambassadors provided testimonials on the management of their own diabetes and also provided support to patients in managing their diabetes. The Whittier Street team also offered a variety of diabetes related services in one visit. Patients participated in individual and group sessions with the certified diabetes educator and a registered dietitian, group medical visits, a medication adherence support group, a weight loss program, and exercise facilities made available through referrals. Figure 2, below, shows a visual depiction of the DCCP and the relationship between the Whittier Street clinical staff and the Roxbury community.

Figure 2

Diabetes Care Coordination Program Model



[Note. The black dots represent the community partners (e.g., Boston Housing Authority, Bell Tower Food Truck, and Boston YMCA/Body by Brandy). The gray dots represent engagement of the Diabetes Health Ambassadors.]

Intervention components, elements, and modes of delivery. Rooted in behavior change strategies, intervention components were developed based on ToD project objectives. As Table 2 displays, each component had a number of specific intervention elements and distinct modes of delivery through the use of Ambassadors. Rooted in behavior change strategies, there were six intervention components within the DCCP: 1) Diabetes self-management education; 2) Support for managing diabetes and distress; 3) Enhance access/linkage to care; 4) Improve quality of care; 5) Community organization, mobilization, and advocacy; and 6) Health system and community transformation. The first component (DSME) included specific elements such as the onsite diabetes education workshops on healthy nutrition. Since the registered dietitian and the Ambassadors delivered the service, they were the mode of delivery. For the second intervention component (support for managing diabetes distress) one of the elements used was diabetes group sessions with a certified diabetes educator. This served as a support group as it allowed patients to voice the strategies that worked and ones that did not work for diabetes management. For the third intervention component (increasing access or linkage to care) a key element was glucose and blood pressure screenings at public housing units and referrals made for those with high clinical indicators. For the fourth intervention component (improving quality of care) clinical practice changes such as new documentation protocols were developed to improve the quality of DCCP services delivered. For the fifth intervention component (community organization, mobilization, and advocacy) specific elements included the organization of Ambassadors to mobilize residents and advocate for those with diabetes. Community organization activities occurred during weekly coffee hour at an area public housing unit, where

Whittier Street staff visited once a month. For the final intervention component (health system and community transformation) a specific element was care coordination. Diabetes Care Coordination Program elements will be sustained through membership fees for a Whittier Street-based wellness center and through grant applications (e.g., federal and non-profit foundations). Table 2 provides a summary of intervention components, elements, and modes of delivery of the DCCP.

Table 2

Diabetes Care Coordination Program Intervention Components, Elements, and Modes of Delivery

Intervention Components (<i>Behavior Change Strategy</i>)	Specific Intervention Elements	Modes of Delivery
Diabetes Self-Management Education (<i>Providing information and enhancing skills</i>)	<ul style="list-style-type: none"> • Diabetes self-management education classes and workshops delivered covering topics related to prevention and self-care (e.g., blood glucose monitoring, engagement in physical activity, consumption of healthy foods, foot and eye care, and healthy coping) • Diabetes education workshops in public housing units • Diabetes education provided at food festivals, farmers market, parks, etc. 	<ul style="list-style-type: none"> • Diabetes Health Ambassadors • Registered Dietitian • Outreach Nurse • Certified Diabetes Educator
Support for Managing Diabetes and Distress (<i>Enhancing services and supports</i>)	<ul style="list-style-type: none"> • Patients provided support through: <ul style="list-style-type: none"> ○ Group medical visits ○ Medication adherence support group ○ Individual behavioral health support • Ambassadors worked with patients to set goals, provide continued support, and conduct weekly follow-up calls to prompt engagement in self-management behaviors 	<ul style="list-style-type: none"> • Diabetes Health Ambassadors • Diabetes Nurse Case Manager • High Risk Nurse Case Manager • Integrated Behavioral Health Specialist • Clinical Pharmacist
Enhanced Access/Linkage to Care (<i>Modifying access, barriers, and opportunities</i>)	<ul style="list-style-type: none"> • Blood pressure and glucose screenings at public housing units • Women identified as having markers for diabetes were referred to Whittier Street's DCCP • Participants given access to: <ul style="list-style-type: none"> ○ Individual and group sessions 	<ul style="list-style-type: none"> • Diabetes Health Ambassadors • Outreach Nurse • Patient Navigator • Diabetes Nurse Case Manager

	<ul style="list-style-type: none"> with a certified diabetes educator <ul style="list-style-type: none"> Individual or group sessions with a registered dietitian Linking patients to exercise facilities, healthy nutrition (e.g., fresh food vouchers), health insurance, housing, financial assistance (taxi vouchers), etc. 	
Improve Quality of Care (<i>Modifying policies and broader systems</i>)	<ul style="list-style-type: none"> Patients linked with nurse case manager who coordinated their care. This included assisting patients in overcoming barriers to care, understanding treatment options and preventive behaviors, and providing access to clinical and emotional support services Ambassadors received ongoing training and support for clinical measurement, patient support, and cultural competence Manager of quality assurance used evaluation checklists to identify areas of improvement and met with team to address solutions. Clinical practice changes, such as new documentation protocols for foot exams, self-management goal-setting, and high-risk case stratification, to assure consistency and enhance quality of care Training of the certified diabetes educator by the ADA in Chicago 	<ul style="list-style-type: none"> Diabetes Health Ambassadors Manager of Quality Assurance Diabetes Nurse Case Manager Primary Care Physician Clinical Pharmacists
Community Organization, Mobilization, and Advocacy (<i>Modifying access, barriers, and opportunities; Providing information and enhancing skills</i>)	<ul style="list-style-type: none"> Outreach to public housing residents by trained Ambassadors (e.g., Coffee Hour events) Participation in community events (e.g., food festivals, farmers markets, etc.) Navigation to health insurance and other services Participated in Unity in the Community Round Table—informed community stakeholders about the ToD project and the importance of addressing diabetes 	<ul style="list-style-type: none"> Diabetes Health Ambassadors Outreach Nurse Diabetes Nurse Case Manager Patient Navigator
Health System and Community Transformation (<i>Modifying policies and broader systems</i>)	<ul style="list-style-type: none"> Building social connection among those with diabetes through support groups Providing care coordination among clinical team members Strengthen community partnerships among different sectors (e.g., health centers, and local organizations) Work to reduce preventable hospitalizations related to diabetes 	<ul style="list-style-type: none"> Manager of Quality Assurance Diabetes Health Ambassadors All Clinical Team Members

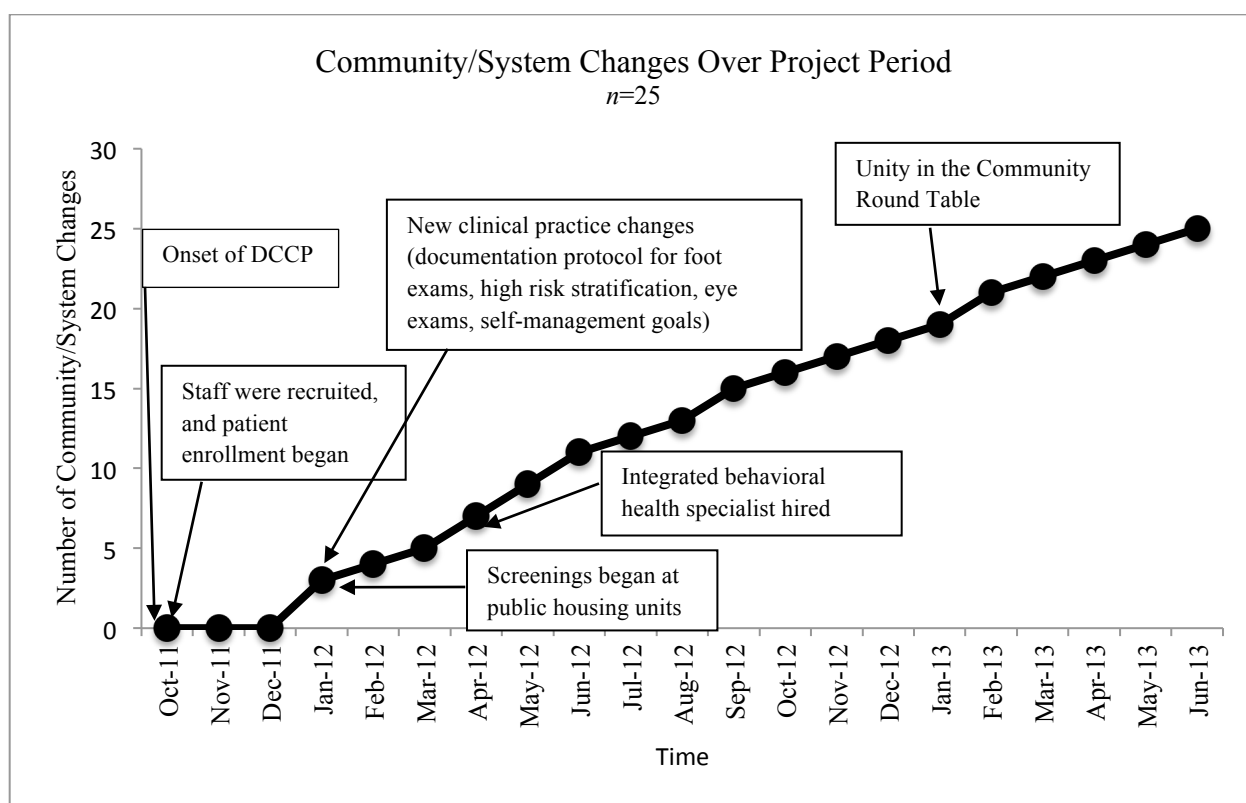
Results

Data on Project Implementation

Research Question 1: To what extent did the Whittier Street Health Center initiative serve as a catalyst for community and systems changes related to diabetes care?

Figure 3

Community and Systems Changes Brought About by Whittier Street Over Project Period



[Note: In a cumulative graph, each new activity is added to all prior activities. A flat line shows no activity. The steeper the line, the higher the rate of community and systems changes.]

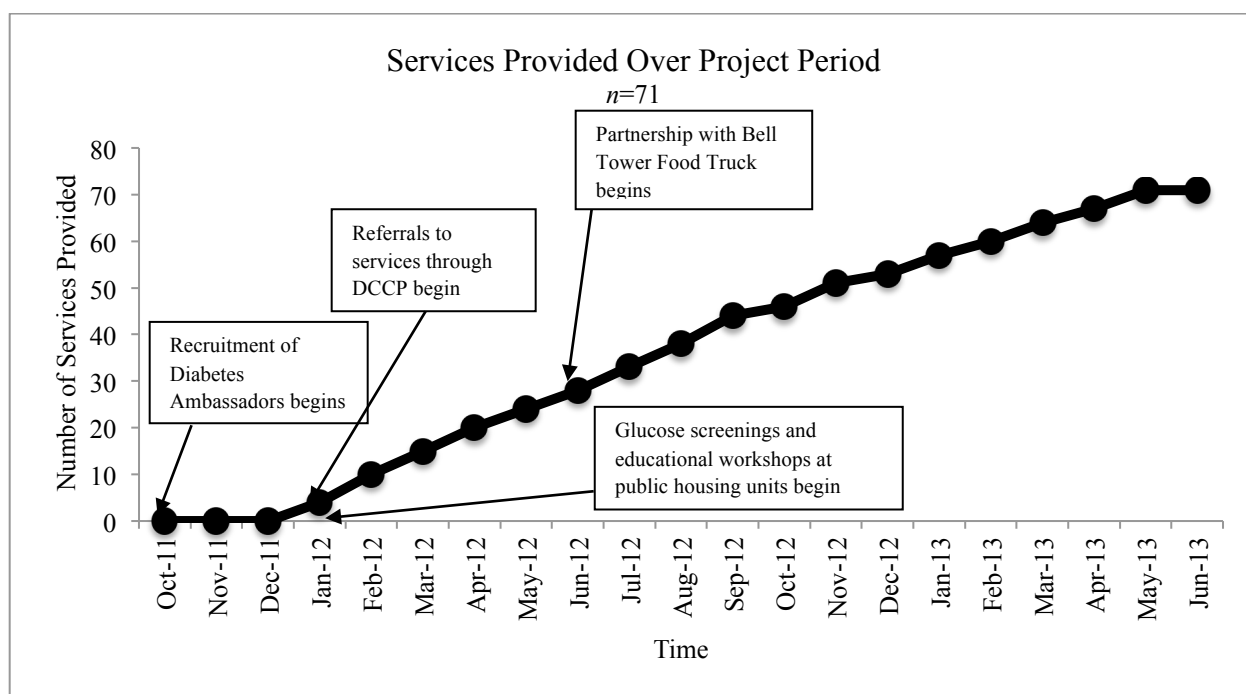
Data from the Online Documentation and Support System (ODSS) and key informant interviews suggested that Whittier Street Health Center's Diabetes Care Coordination Program (DCCP) served as a catalyst for documented community and systems changes. Figure 3 shows a steady unfolding of community and system changes ($n=25$) following the onset of the DCCP in

October 2011. Following a slower planning period (October to December 2011), there was an increase in community and systems changes—new programs, policies, and practices. The increase was associated with the onset of the DCCP, staff recruitment, and patient enrollment. The new program (DCCP) implemented a coordinated care model (a team of experts working together) to provide diabetes self-management education and support for program participants as a new practice in diabetes care. In January of 2012, there were new clinical practice changes that were implemented within the Whittier Street Health Center. Those included a new self-management goal documentation protocol that helped in the evaluation of patients' behaviors such as healthy eating, active living, medication management, and daily glucose monitoring. Later in January of 2012, new documentation protocols for foot exams, eye exams, and high-risk stratification (prediction of healthcare utilization because of complications) were integrated into the electronic medical record to make it easier for the coordinated team to access the necessary patient information. In addition, an integrated behavioral health specialist was hired in April of 2012 to assure high quality behavioral health support. In January 2013, a Unity in the Community Round Table was held. This new practice allowed Whittier Street to communicate the BMS Foundation funded initiative to Roxbury community stakeholders. As revealed by the key informant interviews, this new practice allowed Whittier Street to make the case for why diabetes should be addressed within Roxbury. Over the project period, there were a total of 25 unique community and systems changes brought about by Whittier Street's initiative.

Research Question 2: What were the effects of the Diabetes Care Coordination Program on the amount and kind of services provided?

Figure 4

Services Provided Brought About by Whittier Street Over Project



[Note: In a cumulative graph, each new activity is added to all prior activities. A flat line shows no activity. The steeper the line, the higher the rate of community and systems changes.]

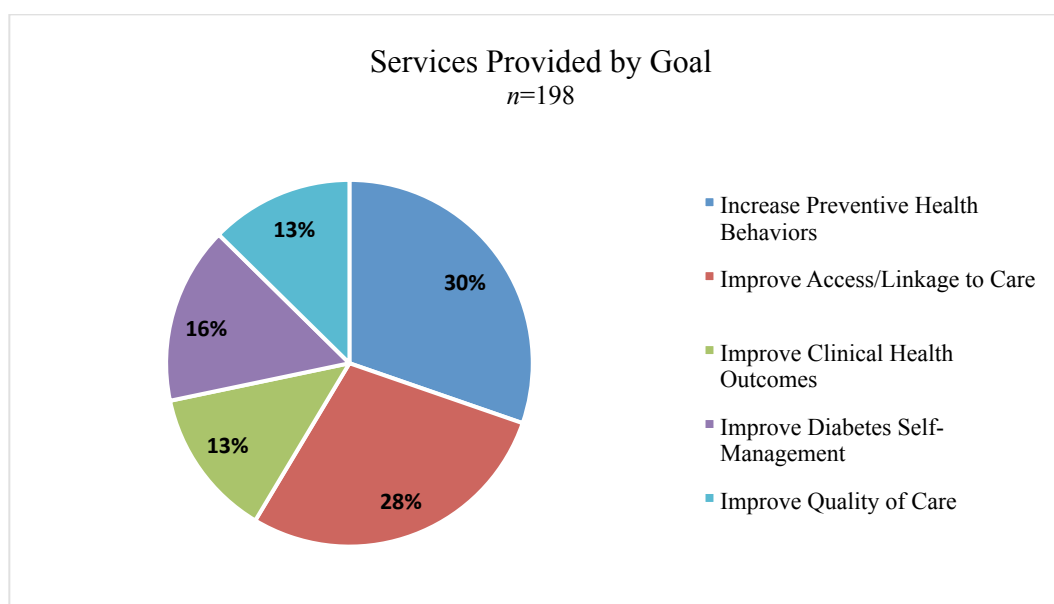
Figure 4 shows a steady delivery of services provided ($n=71$) following the onset of the DCCP in October 2011. Whittier Street provided these services from December 2011 to June 2013. Following a slower period at start up, there was an increase in services provided in January 2012. This was associated with services being provided at public housing units (e.g., glucose and blood pressure screenings, educational workshops, and referrals to clinical and community services). Program participants were enrolled through a rolling basis October 2011 to March 2012. After patients were enrolled in the DCCP, they received behavioral and clinical services through the coordinated clinical team. Diabetes Health Ambassadors met the program participant at the Whittier Street Health Center facility. The nurse case manager along with the Ambassador

helped the patient set her goals, discussed treatment options with her, and explained the different services through the DCCP (e.g., a 12 session DSME course offered twice a week for six weeks, diabetes group medical visits, integrated behavioral health, high risk nurse case manager, a weight-loss program, a medication management support group, access to physical activity through the Boston YMCA, access to fresh fruits and vegetables through a mobile food truck, and access to any additional needed services). This Patient Centered Medical Home (PCMH) approach provided care coordination of multiple team members: Ambassadors, nurse case manager, certified diabetes educator (provided DSME), registered dietitian (provided nutrition information), clinical pharmacist (provided medication options, discussed side effects), behavioral health specialist (provided guidance on how to manage life stressors and how to increase health behaviors), and primary care provider (provides guidance to the nurse case manager and sees patients once a month). Another important member to the team was the manager of quality assurance who oversaw every stage of the DCCP to assure the best quality of services that were delivered to participants.

At the same time, community outreach, DSME sessions at public housing units, and referrals to diabetes care were still being conducted for residents in collaboration with other organizations (e.g., Neighborhood Health Plan, Springfield College, Mission Main Health Movement, Mission Main Concerned Residents Committee, and other community organizations). In May of 2012, the Whittier Street team parked a van at a local park and started to provide education (outside the van) and glucose testing (inside the van). Additionally, in June of 2012, a partnership with Bell Tower Food Truck accelerated the delivery of services related to access to healthy food. Overall, Whittier Street Health Center documented 71 services provided over the project period.

Figure 5

Whittier Street Health Center Services Provided by Goal



[Note. Since some activities addressed multiple goals, the total goal aggregates (*n*=198) in the figure exceeded the total number of unique services provided (*n*=71).]

Figure 5 depicts the distribution of services provided by goal after the onset of the DCCP. Of all the goal aggregates of services provided (*n*=198), 30% had a goal to increase preventive care behaviors (e.g., increase healthy eating through the provision of fresh fruits and vegetables); 28%, had a goal to increase access or linkage to care (e.g., screening services were provided in housing units, parks, churches, mosques, farmers markets, hair salons etc.); 16%, had a goal to improve diabetes self-management (e.g., increase physical activity through referrals to the Boston YMCA); 13%, to had a goal to improve clinical health outcomes (e.g., regulate medications to reduce HbA1c); and 13%, had a goal to improve the quality of life (e.g., Ambassadors addressing other stressors such as housing, food, and finances in addition to diabetes). Services were provided within the community included blood glucose and blood pressure screenings at nearby housing complexes, educational workshops on nutrition and active

living at community centers, churches, mosques, a nearby college campus, and community festivals as well as referrals to clinical and community services. Additional services that were provided within the clinic include DSME/S (e.g., behavioral goal setting, glucometer training, cooking demonstrations, active living training, medication management, foot exams, eye exams, HbA1c tests, blood pressure measurement, and weight measurement). Table 3 lists illustrative services provided by goal area and their respective mode of delivery.

Table 3

Illustrative Services Provided by Goal Area and Mode of Delivery

Goal Area	Illustrative Services Provided	Mode of Delivery
Improve Diabetes Self-Management	The Diabetes Health Ambassador collaborated with Whittier Street's registered dietitian at a local housing complex to educate residents and community members on better eating habits in order to prevent diabetes. An open question and answer session was offered after the education session.	Diabetes Health Ambassador Registered Dietitian
Improve Access/Linkage to Care	African American women were screened for diabetes and information was provided. This was done during the Coffee Hour in the public housing units where those with high blood glucose were referred to the health center.	Diabetes Health Ambassadors Outreach nurse
Increase Preventive Health Behaviors	A diabetes prevention and self-care skill lesson was taught to members of the community at a local apartment complex.	Diabetes Health Ambassador Certified Diabetes Educator
Improve Clinical Health Outcomes	A diabetes prevention workshop was implemented for the community. Community members were invited to the health center. The workshop consisted of presentations and demonstrations on glucose screening.	Certified Diabetes Educator Diabetes Health Ambassador Diabetes Case Manager
Improve Quality of Care	A new documentation protocol for foot and eye exams was developed by Whittier Street's clinical team to improve the quality of care for DCCP participants.	Diabetes Health Ambassador Registered Dietitian

[Note. Goal areas were extracted from the online documentation system (ODSS).]

As noted in Table 3, an Ambassador conducted the DSME session in collaboration with another Whittier Street team member depending on the learning goals (e.g., with a registered dietitian, certified diabetes educator, outreach nurse, etc.). To improve access/linkage to care,

health screenings were conducted during coffee hour in the public housing units, and those with high blood glucose were referred to the nearby Whittier Street Health Center. Table 3 conveys some of the adaptations or tailoring of the services provided that were designed to fit the needs, resources, and context of the Roxbury neighborhood community members.

Data on Behavioral Health Outcomes

Table 4, below, summarizes the number and percentage of participants with improved diabetes-related behavioral health outcomes. The result show that 96% of program participants attended their scheduled annual foot exam, while 67% of patients achieved at least one of their self-management goals (e.g., reduced glycosylated hemoglobin (HbA1c) levels, decreased weight, reduced their total blood pressure, etc.). An additional outcome was that 92 women lost 1,300 pounds (an average of 15 pounds each) as part of Whittier Street's weight loss program.

Table 4

Behavioral Health Outcomes for Diabetes Care Coordination Program Participants

Behavioral Health Outcome	Number of Patients (<i>n</i> =148)	Percent of Participants
Patients Attended Annual Foot Exams	142	96%
Patients Attended Annual Eye Exams	143	97%
Patients Engaged in Diabetes Self-Management Behaviors	140	95%
Patients Achieved Self-Management Goals	99	67%

[Note. The first two behavioral health outcomes were obtained from Centricity. Patient self-management behavior data was obtained from patient passports. Achieving self-management goals was obtained from Centricity and an achievement was defined as accomplishing at least one of the self-management goals.]

Data on Clinical Health Outcomes

Research Question 3: Did the effects of the Diabetes Care Coordination Program

generalize to diabetes-related clinical health outcomes among program participants?

Using a pre-test, post-test comparison, a paired *t* test was conducted to examine within-patient clinical health outcomes. Pre- and post-assessments were available for program

participants ($n=148$), with a mean interval of 16 months between the baseline and post measurements. For those enrolled in the DCCP, the results show modest improvements in glycosylated hemoglobin (HbA1c), weight, and diastolic blood pressure. There was a mean change in HbA1c levels from 7.76% to 7.48% ($p = 0.016$). Furthermore, the average weight of patients during baseline was 199.9 pounds; at 16 months, patients averaged 197 pounds ($p=0.021$). In addition, diastolic blood pressure was reduced from 82.9 mm Hg during baseline to 80.7 mm Hg in the post-assessment, a 2.2 point change ($p=0.027$). Other clinical health outcomes showed smaller changes (BMI, systolic blood pressure, LDL cholesterol, and total cholesterol). Additionally, using a one-sided t test, Cohen's d was computed to measure effect size. For HbA1c, weight, and diastolic blood pressure, the effect sizes were approaching medium. Table 5, below, summarizes the results for DCCP clinical health outcome measures (using pre- and post-intervention assessments).

Table 5

Clinical Health Outcomes for Diabetes Care Coordination Program Participants

Clinical Health Measures	Baseline ($n=148$)	At 16 Months ($n=148$)	Difference	p	Cohen's d
HbA1c (%)	7.76	7.48	0.30	0.016*	0.403
Body Mass Index	34.60	34.30	0.30	0.203	0.211
Weight (pounds)	199.90	197.0	3.0	0.021*	0.384
Systolic Blood Pressure (mmHg)	146.20	134.50	11.60	0.096	0.275
Diastolic Blood Pressure (mmHg)	82.90	80.70	2.20	0.027*	0.367
LDL cholesterol	94.20	90.80	3.40	0.139	0.245
Total Cholesterol	174.0	170	3.80	0.153	0.238

[Note. HbA1c= glycosylated hemoglobin (14% is the largest 9% is considered uncontrollable). Findings approach significance at the $p<0.05$ level. Cohen's d calculates the difference between means divided by the standard deviation for the effect of the intervention and effects can be small=0.2, medium=0.5, or large=0.8). Systolic and diastolic blood pressures measures at mm Hg (millimeters of mercury).]

Table 6, below, summarizes the number of participants with improved diabetes-related clinical health outcomes. The criteria on improvement was any reduction of the below clinical health markers between the baseline levels and at 16 months.

Table 6

Number and Percentage of Patients with Improved Clinical Health Outcomes

Clinical Health Outcomes	Number of patients improved (<i>n</i> =148)	Percentage of Patients improved
HbA1c	88	59%
BMI	78	53%
Weight (pounds)	82	55%
Total Blood Pressure	84	56%

[Note. HbA1c= glycosylated hemoglobin. BMI=Body Mass Index]

Research Question 4: What specific roles did the Diabetes Health Ambassadors play in the delivery of diabetes-related services as part of the Diabetes Care Coordination program?

The Ambassadors played a critical role in the outreach, engagement, and delivery of diabetes services for DCCP participants. Whittier Street staff hired a total of nine Diabetes Health Ambassadors as part of the DCCP. The nine Ambassadors reached African American women where they were—in public housing units, community buildings, churches, mosques, parks, local food markets, and at community events—and built relationships with them. Ambassadors were required to be of the same ethnic group as the target population, and also live in public housing units to assure that they had similar history (e.g., experienced the same positive or negative events within the neighborhood), experiences (e.g., living conditions, socio-economic status), and customs (e.g., language/phrases used, eating habits, interests, and activities). Ambassadors helped shape the diabetes self-management education curriculum to reflect the cultural aspects of eating healthy, engaging in physical activity, adhering to one's medication, monitoring blood glucose, and managing stress. Some women found comfort in the

phenotypic (e.g., race, gender) commonality between them and the Ambassadors (personal communication, 2014).

Ambassadors played a critical role in addressing patients' individual life stressors by referring them to needed community services before delivering diabetes self-management education. Working closely with the nurse case manager, Ambassadors helped make referrals to clinical team members for more comprehensive diabetes care. Ambassadors also provided support to patients through follow-up phone calls to program participants. As both residents of the neighborhood and current patients, Ambassadors also provided guidance to Whittier Street's manager of quality assurance on how to better services inside and outside the health center. Ambassadors worked closely with 10 to 12 program participants. Table 7, below, is a task analysis of the types of activities in which Ambassadors were involved, a description of the activity, and where it took place.

Table 7

Diabetes Health Ambassadors' Activities, Operational Definition, and Place of Activity

Ambassador Activity	Operational Definition	Where the Activity Took Place
Community/Patient Outreach	Ambassadors went to women where they were (housing complexes, churches, and community events, etc.) to provide diabetes information and invite them to measure their blood glucose onsite. If blood glucose levels were elevated, patients were referred to the Whittier Street Health Center. If patients did not have elevated blood glucose, they were provided information on healthy nutrition and ways to increase their physical activity.	<ul style="list-style-type: none"> • Door-to-door outreach at public housing units (encouraging patients to get screened at the nearby Whittier Street Health Center) • Blood pressure and glucose screenings at gatherings within public housing events (e.g., coffee hour)
Building Relationships (Rapport)	Ambassadors listened attentively as the patient told her story (eye contact, head nodding, and providing empathy). The Ambassador then told her own story (life experiences). When the importance of taking	<ul style="list-style-type: none"> • Community events (e.g., farmers markets), at public housing units, church, mosques, and any opportunity that the Ambassador gets

	care of one's health came up as a topic, Ambassadors introduced the DCCP as a possible option.	during and off work hours
Acknowledge Stressors Experienced by Patients	Ambassadors discussed stressors that program participants were experiencing. They listened attentively to patients and acknowledged life stressors that they have experienced themselves as African American women (e.g., limited access to healthcare, insurance, food, income, housing, etc.).	<ul style="list-style-type: none"> • Whittier Street Health Center • Community settings (e.g., public housing complexes, community events, etc.) • Whittier Street Health Center
Refer Patients to Community Services (Patient Navigation)	Ambassadors referred patients to community services to help address patient stressors (e.g., where to get health insurance enrollment, where to get a job, and where to access fresh fruits and vegetables).	<ul style="list-style-type: none"> • Whittier Street Health Center where all the information is located and near close reach • Nearby community service locations
Refer Patient to Clinical Services at Whittier Street	Ambassadors referred patients for further testing at the health center. For those who were part of the DCCP, Ambassadors referred the patients to the clinical team (e.g., high risk nurse, clinical pharmacist, the physician, etc.)	<ul style="list-style-type: none"> • Community settings (e.g., public housing complexes, parks, places of worship, community events, etc.) • Whittier Street Health Center
Provided Culturally Competent Diabetes Self-Management Support and Education	Ambassadors delivered culturally competent DSME/S. Culturally competent was defined as an Ambassador of the same racial or ethnic group as the population served, who lived for a few years among the target population, and was connected to the community through relationships (personal communication, 2014). DSME included specific instructions and modeling on how to measure one's blood glucose with immediate feedback, modeling how to cook healthy foods, and instruction on ways to increase physical activity.	<ul style="list-style-type: none"> • Community settings (e.g., public housing complexes, parks, places of worship, community events, etc.) • Whittier Street Health Center (e.g., DSME classes, support groups, etc.)
Maintain Accurate Records of Activities	Ambassadors documented the number of outreach sessions, supports provided, phone calls made, along with number of referrals to services within and outside the health center and the number of enrollments in the DCCP. Information was entered into a Whittier Street database.	<ul style="list-style-type: none"> • Whittier Street Health Center
Community/Patient Support through Follow-up	Ambassadors supported patients in managing their diabetes through follow-up phone calls. They prompted patients to attend their monthly appointments and to engage in self-management behaviors. Ambassadors provided home visits, if participants asked for additional support.	<ul style="list-style-type: none"> • Community settings (e.g., public housing complexes, parks, places of worship, community events, etc.) • Whittier Street Health Center
Suggest	Ambassadors were also patients within the	<ul style="list-style-type: none"> • Whittier Street Health Center

Modifications within the Health Systems	health center. One of their roles was to suggest program improvements to the manager of quality assurance.	(with clinical staff)
Improve their Own Health	Ambassadors controlled their diabetes but one of their roles was also to continue to improve their own health. Accordingly, they maintained their own diabetes self-management regimen.	<ul style="list-style-type: none"> • Where Ambassadors live, work, play, and pray
Advocate on Behalf of People with Diabetes	Ambassadors attended meetings and conferences to speak on behalf of those with diabetes. They also made phone calls to health insurance companies to seeking required services to meet participants' needs.	<ul style="list-style-type: none"> • Conferences • Meetings with stakeholders • Whittier Street Health Center • Community events
Detect Signs of Distress	Ambassadors detected signs of distress experienced by patients. If patients did not attend a scheduled visit, Ambassadors called them (or sent a text message) to find out the reason for not attending a scheduled visit.	<ul style="list-style-type: none"> • Within all settings when a patient is falling/dropping out of care • Whittier Street Health Center
Serve as a link between Whittier Street and the Boston Housing Authority	Ambassadors served as a link between Whittier Street Health Center and public housing residents. This was done through a collaboration with the Housing Authority and through Ambassadors being public housing residents.	<ul style="list-style-type: none"> • Community settings (e.g., public housing complexes, parks, places of worship, community events, etc.) • Whittier Street Health Center
Community Organization/Mobilization	Ambassadors held community events and mobilized community members to take action and manage their own self-care behaviors.	<ul style="list-style-type: none"> • Community settings (e.g., public housing complexes, parks, places of worship, community events, etc.)
Represent Whittier Street Health Center	Ambassadors were tasked with maintaining a respectable personal image and representing Whittier Street, its stakeholders, and community members in the best image possible.	<ul style="list-style-type: none"> • Community settings (e.g., public housing complexes, parks, places of worship, community events, etc.) • Whittier Street Health Center

[Note. Data for the task analysis was collected through document abstraction, key informant interviews, the ODSS.]

Discussion

The present study examined the implementation of the Diabetes Care Coordination Program (DCCP) and its effects on diabetes-related clinical health outcomes for participants. Several conclusions can be drawn from this study.

First, the Whittier Street Health Center's initiative served as a catalyst for community and systems changes related to the provision of quality diabetes care for African American women.

New programs, policies, and practices were implemented both within the health center (e.g., new clinical practice changes) and outside (e.g., new practice of community screening, partnership for access to healthy food, etc.). Several key elements or factors were associated with increased community and systems changes ($n=25$). Whittier Street staff selected and hired Ambassadors to help in the delivery of diabetes care services to the target population. The new practice of outreach screenings for blood glucose, blood pressure, and health promotion at public housing units was a major factor in the observed increase in change efforts. Information from key informant interviews suggested diabetes care activities at the public housing units by the Ambassadors, outreach nurse, and other Whittier Street members was the largest catalyst for community and systems changes because it enabled African American women to seek diabetes information and services where they were most comfortable. Additionally, new clinical practice changes within Whittier Street enabled the systematic documentation of self-management goals, foot/eye exams, and other measures within the medical record. This allowed more effective coordination of care by Whittier Street's clinical team.

Second, the results suggest that an increase in diabetes-related service delivery was associated with several factors. An increase in services provided ($n=71$) was associated with the hiring of the Ambassadors and outreach sessions to public housing units by Whittier Street staff members. Glucose screenings and educational workshops at public housing units increased access to diabetes care services for community members. Referrals to Whittier Street Health Center allowed for clinical health services through a comprehensive care model. Finally, partnerships with the mobile food truck, Boston YMCA, and Body by Brandy provided healthy nutrition and physical activity opportunities. Overall, the data suggest that recruitment, hiring, and training of Ambassadors was associated with an increase in services provided. Services were

delivered for each of the five ToD goal areas captured through the Online Documentation and Support System (ODSS) (e.g., increase preventive health behaviors, improve self-management education, improve access/linkage to care, improve clinical health outcomes, and improve quality of care). The distribution of amount and kind of services provided through the DCCP showed adherence to the mission of Whittier Street's initiative. Most of the services (30%) that were provided had the goal to increase preventive behaviors through engagement in physical activity, consumption of healthy foods, and stress management.

Third, study results show an association between implementation of the Diabetes Care Coordination Program and modest improvements in diabetes-related clinical health indicators. Using a within-patient analysis between baseline and outcomes at 16 months, implementation of the DCCP was associated with reductions in glycosylated hemoglobin HbA1c ($p = 0.016$), weight ($p=0.021$), and diastolic blood pressure ($p=0.027$) at the 0.05 level of significance. Improved clinical health outcomes were associated with an increase in services provided for program participants. There was a slight decrease in BMI, systolic blood pressure, LDL cholesterol, and total cholesterol. Since the pre-test post-test design cannot rule out other correlated events, the findings are simply suggestive of the conclusion that implementation of the DCCP—and not something else—produced the modest improvements.

Although other plausible explanations cannot be ruled out in a simple time series design, the association is suggestive and there is a case for its plausibility. The logic model was developed to guide the planning and implementation of project activities. The logic model was used as a roadmap and included the Diabetes Care Coordination Program's context, inputs, activities, outputs, and intended clinical health outcomes. This was also used to assure the collaboration of community partners. The monitoring and evaluation plan aided in the

development of the project goals, specific evaluation questions, and related indicators to monitor and assess progress towards the intended clinical health outcomes. Measurement of the DCCP implementation and its association with outcomes adds to the plausibility.

Finally, data were gathered through semi-structured interviews with key informants to help understand the specific role of Diabetes Health Ambassadors. The task analysis suggested 15 discrete activities (roles) that Ambassadors engaged in throughout the implementation of the DCCP, see Table 7. This information can be helpful in developing systematic studies testing the effects of the implementation of Ambassador programs and their potential contributions to diabetes self-management.

Some challenges were salient in the implementation of the DCCP. First, Diabetes Health Ambassadors had difficulty reaching the women at home during the door-to-door outreach at the beginning of the program. The team changed its approach and began to plan screening events at different housing units, for instance, by using public spaces and inviting women ahead of time. Second, the Whittier Street team noticed that women needed more behavioral health support for managing diabetes. After consulting with team members, the manager for quality assurance hired an integrated behavioral health specialist. Third, women reported a lack of access to fresh fruits and vegetables. In response, Whittier Street implemented a formal collaboration with a mobile food truck (in June of 2012) that provided food three days a week to public housing residents. Fourth, participants reported some barriers related to transportation for scheduled appointments at the Whittier Street Health Center. Although the health center is in close proximity to five public housing developments, there were many women who lacked transportation. The team addressed this issue by providing taxi vouchers for those who lacked adequate access to transportation. Finally, the coordinated team noticed that medication management was a barrier

to care for many program participants. Consequently, they developed a medication management support group to assist with barriers to medicine adherence. The clinical pharmacist and the Ambassadors led the support group.

Several issues limited the experimental control of this study. First, the dose of services that were provided for each individual participant was difficult to ascertain. For example, some of those enrolled into the DCCP earlier may not have had the full set of services that were available towards the end of the program. Second, project implementation is not a measure of the dose of program activities experienced by participants. Third, there were no individual-level behavioral outcomes available to assess whether there was change in behavior of particular individuals following the onset of the intervention. Fourth, a case study design does not control for factors related to internal validity (e.g., history, maturation, and attrition). Other correlated events beyond the DCCP may have affected self-management and associated clinical health outcomes. Fifth, there was no comparison community to assess the effectiveness of the DCCP. Finally, there could have been program elements that were implemented but never documented within the online documentation system, despite efforts to assure data completeness. Despite the limitations however, this case study design provided the basis for hypothesis generation by helping discover associations between program participation and change in clinical health outcomes (Yin, 2013).

This study had a number of strengths. First, Whittier Street's use of Diabetes Health Ambassadors as mediators for DCCP service delivery was a particularly valuable contribution as noted by staff members. Ambassadors helped reach the target population of low-income African American women, where they lived. Ambassadors increased diabetes awareness within the community and also played a key role in building rapport and trust of the diabetes program

among community members. Because of outreach by the Ambassadors, 980 women were screened for diabetes, referred to primary care, and were reengaged to diabetes care after falling out of care. Second, a related strength was the ability to deliver culturally competent care through the Ambassadors. Because Ambassadors lived within public housing units and were also patients at Whittier Street Health Center, they were better able to detect barriers in service care delivery and identify possible solutions.

Third, using the Patient-Centered Medical Home (PCMH) model to deliver diabetes self-management education (DSME) and diabetes self-management support (DSMS) through care coordination was an important strength. The Whittier Street's collaborative team showed efficiency in their ability to delegate tasks and implement diabetes care plans for patients. For example, Whittier Street Health Center did not have adequate mental health services to help patients cope with diabetes-related stress and depression. To resolve this gap in service delivery, an integrated behavioral health specialist was hired. This specialist was available for walk-in appointments and was also included during group visits to address the behavioral health needs of patients (e.g., addressing barriers to behavior change). To assure access, Whittier extended the hours of the diabetes navigator to include evening hours and also established a transportation reimbursement program for participants seeking access to healthcare.

Fourth, addressing patients' needs beyond diabetes was another major strength of this effort and empirical case study. Upon enrollment, patients' barriers, needs, and concerns were addressed by linking them to the needed services prior to the start of the program. This allowed patients to enroll in health insurance plans and to obtain financial, housing, and transportation assistance. This was a particular interest to women who wanted to address diabetes but were experiencing many competing stressors. Fifth, collaborating with community partners aided in

the acceleration of service care delivery. The Boston Housing Authority provided access to residents at public housing units, the Boston YMCA and Body by Brandy increased access to opportunities for physical activity, and the Bell Tower Food Truck provided fresh fruits and vegetables for the target population. Finally, the use of a mixed-method approach that included both quantitative and qualitative data was a strength in fully capturing the implementation of the DCCP and its effects on diabetes-related clinical health outcomes. Quantitative data on diabetes-related clinical health outcomes was gathered from Whittier Street's medical records. Quantitative data was gathered from the online documentation system, key informant interviews, and document abstraction. The ODSS provided real-time data on project implementation. Through sensemaking sessions, project leadership and the evaluation team reflected on what the data showed (e.g., in patterns of services provided), what it means, and implications for adjustments.

Lessons learned. There were a few lessons learned from the implementation of this project that Whittier Street staff shared with the KU Work Group evaluation team during the key informant interviews. First, one of the goals of using Diabetes Health Ambassadors to deliver care was that the target population would find support for managing their diabetes. An unintended positive outcome was that the Ambassadors gained new insights into the management of their own illness, and they adopted additional lifestyle changes that were learned from program participants. Second, the Whittier Street team affirmed that African American women act as gatekeepers for their families, and that teaching and serving one woman allowed for teaching and serving the entire family (personal communication, 2014). Program participants reported that their own lifestyle changes had an impact on other family members living within their home. For example, one participant reported she stopped purchasing soda beverages for her

family. Another participant introduced healthier cooking strategies to their diet (e.g., using olive oil instead of butter). Third, a coordinated care model helps to assure comprehensive diabetes care. “*It takes a village*” (a coordinated team) to address the diverse array of clinical issues and ultimately control diabetes. Fourth, DSME (including training) and support are important in controlling diabetes. Fifth, partners can work together in a multi-sectoral collaborative partnership to help achieve the conditions for improved prevention and control of diabetes (Fawcett, Schultz, Watson-Thompson, & Bremby (2010).

Recommendations for future research and practice. There are several recommendations for future research and practice. First, to achieve stronger clinical health outcomes, the DCCP would need to be enhanced by assuring lower caseloads for the Whittier Street clinical team. Second, to expand the evidence base, stronger experimental designs are needed to draw firmer conclusions. For instance, a multiple-baseline design across similar federally qualified health centers can enable an enhanced evaluation of effects of the DCCP intervention on clinical health outcomes (Hawkins, Sanson-Fisher, Shakeshaft, D’Este, & Green, 2007). This would strengthen the evidence base by allowing a systematic replication of findings in other clinic and community settings. Third, research and practice would benefit from further testing the community health workers as a model for delivery of DSME and DSMS services. Fourth, implementation science (Fixsen, Blase, Naoom, & Wallace, 2009) can aid in enhancing the role of Ambassadors by providing tools and frameworks for an improved delivery of services using the core implementation components. Fifth, the use of behavior analytic approaches (Baer, Wolf, & Risley, 1968) can enhance knowledge of the effects of the DCCP intervention and behavior change at the individual and the community levels (Glanz & Bishop, 2010). Health practitioners need to identify those who’s behavior matters and that includes more people than

the patients. If the patients are not attending doctor visits because their physicians talk at them and not to them, doctors' behavior matters and behavioral training is needed to assure effective patient-doctor communication.

Conclusions

This research study adds to our understanding of the implementation of the patient centered medical home model, coupled with diabetes self-management education and support through the DCCP and its potential effects on clinical health outcomes. Conducted among African American women, this study tested the implementation effects of a diabetes program among those experiencing health disparities. The delivery of diabetes services by Diabetes Health Ambassadors was effective in engaging women with diabetes, who also lived in low-income housing. This study provided further evidence that coordinated diabetes care, with a focus on the culturally and contextually appropriate service delivery, can have positive health outcomes. Further research is needed to examine effects of the DCCP intervention at the individual, clinic, family, and community levels.

Diabetes is a huge challenge, especially for vulnerable populations at disproportionate risk to adverse health outcomes. To address the physical, emotional, and financial burdens, community health workers and coordinated clinical teams can deliver diabetes education and support to assure patients' continued engagement in self-care behaviors. Modifying the health system environment and assuring opportunities for vulnerable populations to engage in the necessary self-management behaviors can promote health equity and social justice. All community members deserve an opportunity to prevent or control type 2 diabetes and thrive in health and wellbeing.

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Appendix A

Together on Diabetes Codebook



CODING INSTRUCTIONS AND DEFINITIONS
for Documenting Accomplishments
Online Documentation and Support System (ODSS)

By documenting your group's efforts, you are helping make visible what you are accomplishing. Documented activities can be used to promote improvement, accountability, celebrations, and sustainability.

Once you have data entered into the system, you will be able to engage in sensemaking around your documented accomplishments. This will include the ability to look at real-time graphs and ask questions like, "What are we seeing?" "What does it mean?" and "What are the implications for adjustment?"

This document outlines some things that may help you as you get started on documentation, namely, guidance for deciding how to code the information you are documenting.

The table below offers a summary of the codes used to categorize different types of events (activities, accomplishments, or outputs that are facilitated by the initiative or group and related to its goals and objectives).

Brief Definitions for Types of Community Activities, Accomplishments, and Outputs			
Code	Activity	Brief Definition	Examples
ACTIONS/ ACCOMPLISHMENTS			
CC	Community/System Change	A new or modified program, policy, or practice in the community, system, or organization.	New program for diabetes self-management (program), food policy change (policy), different hours of service (practice).
CA	Community Advocacy	Action to bring about a specific new or modified program, policy, or practice in the community or system.	Letters, phone calls, visits with appointed officials.
DA	Development Activity	Actions taken to prepare or enable the group to address its goals and objectives	Worked on developing an assessment, strategic plan, evaluation report, or sustainability
SERVICES			
SP	Services Provided	Delivery of information, training, or other valued goods or activities.	Classes, workshops, communications such as bill stuffers.
DISSEMINATION EFFORTS			
DE	Dissemination Effort	Conveying information about the initiative and its accomplishments to audiences outside the community to be served.	Presentation, publication, distribution of diabetes self-management tip sheet, dissemination of policy brief..
RESOURCES			

RG	Resources Generated	Acquisition of resources for the initiative through grants, donations, or gifts in kind.	Materials, people's donated time, funding received.
OTHER			
O	Other	Items for which no code or definitions have been created.	Phone calls to set up meetings, internal staff meetings.

There are several general considerations in coding events. (More specific definitions, coding instructions, and examples/ non-examples for each of the seven types of events follow.)

Distinguishing between Activities that are External or Internal to the Initiative

Most of your activities will involve people not directly associated with the initiative. For example, group members may work with health organizations to help assure access to screenings or linkages to needed health services. These activities include people from outside the initiative (e.g., clinic staff and participants)) and are considered *external activities*. External activities can be classified as *Community Advocacy*, *Community/System Changes*, *Services Provided*, or *Dissemination Efforts*. External activities involve making things happen in the community or system related to the group's goals and objectives.

Some activities facilitate the development of the partnership or group in attaining its goals and objectives. These activities may be internal, involving only those working directly with the group. For example, the Steering Committee may complete their strategic planning process and adopt a formal action plan; or an executive from the initiative's Board of Directors may donate office supplies. *Development Activities* (such as the first example) are internal activities. *Resources Generated* (e.g., volunteers' time, donated materials, or money) are internal activities if the primary beneficiary is your project (not those ultimately served).

Identifying and Documenting Multiple Events Contained in One Entry

A single reported entry may sometimes contain several discrete activities that should actually have been recorded separately. Support the documentation by breaking out the one entry into several items and coding each activity separately. For example, the following entry might be recorded on a log form: "A second diabetes self-management workshop was facilitated in the East End neighborhood. Evaluation results from this effort were reported at a regional diabetes prevention conference." The reported entry includes a *Service Provided*, "A second diabetes self-management workshop was facilitated in the East End neighborhood," while reporting the evaluation efforts at a conference should be documented as a separate entry and would be coded *Dissemination Effort*, "Evaluation results from the self-management workshop effort were reported at a regional diabetes prevention conference."

Documented Activities Coded in Multiple Categories

There are instances where activities can meet multiple definitions. The most likely combination is *Community/System Change* and *Service Provided* (e.g., the first instance of on-site diabetes screening for residents of a public housing project is both a new practice—Community/System Change—and a Service Provided). Other instances in which an activity may meet multiple definitions include when a media activity is also a Community/System change (e.g., Latino radio station covers an issue for the first time).

Relationship between Community Advocacy and Community/ System Change

Community Advocacy and *Community/System Change* generally relate to each other. Keep in mind the goal or outcome of an action when coding it. The purpose of a *Community Advocacy activity* is to make some change in program, policy, or practice related to the group's goals and objectives (a *Community/System Change*). For each *Community Advocacy*, the intended *Community/System Change* should be evident. A person filling out a description may word items to fit a particular category or definition. The evaluator must code the item relative to what actually happened.

Community/System Changes (CC)

General Definition: New or modified programs, policies or practices in the community, organization, or system facilitated by the initiative and related to its goals and objectives. Changes that have not yet occurred, which are unrelated to the group's goals, or those which the initiative had no role in facilitating are not considered community changes for the initiative. [Note: We use the term “Community/System” and “Community” Changes interchangeably since they represent the same type of activity at different levels (e.g., community/city or broader system) and different sectors (e.g., health or other sectors such as faith communities).

Coding Instructions:

- CC1 Community/system changes must meet all of the following criteria:
 - CC1.1 have occurred (e.g., when a policy is first adopted; when a new program is first implemented - not just been planned), and
 - CC1.2 are related to the initiative's chosen goals and objectives, and
 - CC1.3 are new or modified programs, policies, or practices in different parts of the community, organization, or system (e.g., government, business, schools, health organizations), and
 - CC1.4 are facilitated by individuals who are members of the initiative or are acting on behalf of the initiative.
- CC2 When considering whether an event is new or modified: to be judged as “new,” a program, policy or practice must not have occurred before in the effort (e.g., with these groups of people, with these organizations or partners, in these settings, delivered in these ways). To be judged as “modified,” a program, policy or practice must be expanded or altered (e.g., a training program was expanded to include new modules, a policy was altered to affect new groups of people, a program was delivered in new organizations or places).
- CC3 When considering whether to score multiple events as one instance or as multiple instances of a community/system change: To be judged as multiple instances, changes must be implemented in multiple settings (e.g., different clinics or hospitals) or levels (e.g., local, state levels) AND require separate approvals (e.g., a hospital administrator approved a diabetes self-management program to be taught in her hospital; a second administrator later agreed to do so in his hospital). If the event either occurred in only one setting or occurred as a result of one approval, it is coded as **one** instance of community/system change (e.g., the hospital board agreed to implement a system-wide diabetes self-management program that was implemented in multiple hospitals).
- CC4 When multiple entries of the same event are being documented: The recorders involved should discuss how to record the event as a single entry (e.g., the same program implemented in the same place by multiple groups). If there is disagreement, a data coordinator should resolve differences to best represent how the environment is changing in a way that does not count the same event multiple times.
- CC5 The *first* instance of implementation of a new program or practice in the community is coded as a community/system change, since it constitutes a change in a program or practice in the community/system.
- CC6 A first time occurrence or enactment of a policy is recognized as a community/system change at the point of approval to implement the policy.
- CC8 Not all first-time events are community/system changes; *the event must meet all parts of the definition of a community/system change*. For example, if staff members attended a seminar for the first time it is generally not a community/system change.

Examples of Community/System Changes:

- ✓ The Community Health Center established a new program which identifies patients at risk of developing diabetes and provides supports to promote nutrition and physical activity. (A new program. See coding instruction CC1.)
- ✓ The School Board approved a new district policy guaranteeing healthy school lunches. This new policy will increase the number of healthy food options available to students. (A policy change directly related to the initiative's specific objectives. See coding instruction CC1.)
- ✓ The Community Health Coalition partnered with a network of African American churches to present a series of workshops to community members about prevention of diabetes. This was the first time this workshop was presented in the community. This workshop helped educate community leaders. (A new program created by the coalition's partnering with a local resource. See coding instruction CC1.)
- ✓ The Community Health Center now conducts waist circumference measurements in all wellness and diabetes management appointments. This new practice will assure higher quality care for all patients and will support diagnosis and management of diabetes (A practice change. See coding instruction CC1.)

Examples of items not coded as Community/System Changes:

- ✓ The Community Health Center plans to administer a new program in increase awareness of the role of healthy eating and active living in preventing diabetes. This new program will help community members. (Description written in the future tense. It is coded only if it already occurred. See coding instruction CC1.1. This entry would be coded O.)
- ✓ The Community Health Coalition developed a strategic plan to address state and federal legislative issues. This plan will help the coalition implement better strategies for addressing legislative issues. (This would be coded as a Developmental Activity because it reports a change in processes or organization of the initiative that lead to community or systems changes. See coding instruction CC1.3.)
- ✓ The Community Health Coalition administrative assistant reported that the AME church started a new Sunday afternoon support group for managing diabetes. This new program will help reach more people within our community. (As written, the program was not facilitated by the Community Health Coalition. See coding instruction CC1.4. The entry would be coded O.)

Documentation Instructions:

When writing descriptions of Community Changes:

Description Component	Example
<u>Who</u> was involved in this change and what are their positions/responsibilities within the community?	<i>The quality care coordinators at the community health center...</i>
<u>What</u> new/modified program, policy, or practice was implemented?	<i>... developed and integrated into the electronic medical records a diabetes management checklist ...</i>
Why? Or to what end?	<i>to help providers recognize recommended clinic practices, and improve clinical care.</i>

Community Advocacy Activities (CAs)

General Definition: Activities performed by members of the initiative or group to bring about a new or modified program, policy, or practice in the community, system, or organization related to the initiative or group's goals and objectives. Events categorized as Community Advocacy document the extensive effort it takes to make change in the health system and community.

Community Advocacy activities include acting directly to make changes in the community, actively lobbying, or advocating with targets of change or change agents. Examples include presentations to appointed officials, personal contacts, phone calls, petitions, and letter writing.

Coding Instructions:

- CA1 Community Advocacy activities must meet all of the following criteria:
 - CA1.1 have occurred (not just been planned), and
 - CA1.2 be related to the initiative's goals and objectives, and
 - CA1.3 be taken to bring about Community/System Change, and
 - CA1.4 are facilitated by individuals who are members of the initiative or acting on behalf of the initiative.

- CA3 If presentations to community audiences include generating changes to be made in the community (e.g., listening sessions) or are aimed specifically at some change in the community/system (relative to the group's mission), then it is a Community Advocacy activities. If the workshop or other presentation is a service or program to prevent or manage diabetes it is coded as a Service Provided.

- CA4 If two or more individuals are documenting a common set of activities and multiple entries describing the same action are being documented: The recorders involved should discuss how to record the action as a single entry (e.g., the same action taken toward the same school official). If there is disagreement, a data coordinator should resolve differences to best represent what actions were taken to change the environment in a way that does not count the same event multiple times.

- CA5 Collaboration with community members (people external to the initiative) to set new agendas for the community are Community Advocacy activities.

- CA6 Actions taken to keep the group going--working on bylaws, soliciting funding for the group, or holding meetings among members of the group (e.g., committee, coalition)--are not considered to be Community Advocacy activities since they do not contribute directly to changes in the community related to the group's goals and objectives. Internal meetings among group members are generally not considered Community Advocacy activities.
 - CA6.1. Exceptions occur when members of groups targeted for change are also involved in the initiative and its committees and task forces. For example, at a committee meeting, an intervention for self-management education might be discussed with a representative of the clinic. Since a representative of a community sector to be changed (e.g., the clinic) was involved, it would be considered a Community Advocacy activities.

Examples of Community Advocacy activities:

- ✓ Three members of initiative met with the Dr. McCabe to promote her use of a quality care checklist. The Dr. McCabe is considering the request. A follow up conference call is schedule for next week. (Community Advocacy activity because it targets a Community/System practice change. See coding instruction CA1).
- ✓ Members of the initiative asked local pharmacists to display signs promoting consumers having their A1c checked. The advocates wanted to visually display to the community this prompt. (Community Advocacy activity because it is directly related to a Community/System Change relevant to the initiative's mission. See coding instruction CA1).
- ✓ Promise of Health Coalition members called their local legislators advocating for expanded insurance coverage of self-management education and training. (Community Advocacy activity because it is directly related to a Community/System Change relevant to the mission of increasing diabetes self-management. See coding instruction CA1.)

Examples of items not coded as Community Actions:

- ✓ Little Apple Task Force's subcommittee held a meeting to discuss community policies that may be related to self-management education. Little Apple Task Force's main goal is increasing the quality of public education. (This is not a Community Advocacy activity because no one external to the initiative (like policymaker) was present and it was not part of the mission of Little Apple Task Force. See coding instruction CA6. This entry would be coded O.)
- ✓ The Derby Diabetes Prevention Initiative's School Committee held a meeting to discuss the procedures for electing a chairperson. The committee hopes to have the new procedures in place for the upcoming election. (This is not a Community Advocacy activity because it related to change in the committee, not the community/system. See coding instructions CA1 and CA6. This entry would be coded O.)
- ✓ Representatives of the Healthy Promise Community Coalition will contact the Green Valley Neighborhood Association to arrange a meeting to discuss the implementation of a support group. The coalition hopes to have the support group in place within a year. (This item is a future event, not an action that already occurred. See coding instruction CA1.1. This entry would be coded O.)

Documentation Instructions:

When writing descriptions of Community Advocacy activity:

Description Component	Example
Who was involved in this action and what are their positions/responsibilities within the community?	<i>John and Carol from the Healthy Promise Coalition met with Bill Smith, the leader of a local faith community...</i>
What was the action taken? What community change is it intended to bring about?	<i>...to advocate for holding self-management support through his faith community.</i>
Next step(s)?	<i>Bill will consider their participating and we will call him in one week to answer any additional questions and get his decision.</i>

Development Activity (DA)

General Definition: Actions taken to prepare or enable the group to address its goals and objectives (e.g., developing quality care tools or materials, developing a community health assessment, working on a strategic plan).

Coding Instructions:

- DA1 Development activities must meet all of the following criteria:
 - DA1.1. are actions taken to prepare or enable the group to do its work (e.g., developing a community assessment, working on a strategic or action plan, designing programs or interventions, developing evaluation instruments, developing plans for sustainability)
 - DA1.2. have occurred, not just planned
 - DA1.3. facilitated by members of the initiative or acting on behalf of the initiative
 - DA1.4. is not (or not yet) a Service Provided, Community Advocacy activity, or Community/System Change
- DA2 Development activities include tasks that further the work of the initiative (i.e., assessment, collaborative planning, targeted action or intervention, evaluation, sustainability).
- DA3 Development activities can lead to materials or products such as assessments, analyses of information, strategic plans, training manuals, evaluation plans or reports, organizational or sustainability plans, grant applications, or other products related to the work of the initiative.
- DA4 Development activities include engagement with the broader community that prepares or enables the group to do its work (i.e., members of the initiative attending a meeting to increase individual skills or capacity to address initiative goals/objectives, or facilitating a meeting with the community aimed at a specific objective(s) like planning a diabetes self-management program at the local housing project).
- DA5 Trainings conducted to prepare or build the capacity of staff/ members to implement specific changes in programs, policies, or practices are examples of Development Activities.

Examples of Development Activities:

- ✓ John and Sue from the Coalition implemented the community health assessment. The updated community health assessment will help the coalition better understand the community environment (See scoring instruction DA2).
- ✓ The evaluation work group from the Community Health Coalition worked with evaluators on developing the evaluation plan. This plan will help the Community Health Coalition better understand the effectiveness of their community efforts (See scoring instruction DA2).
- ✓ The Coalition director submitted a grant application for funds for a new program to training promotoras on teaching diabetes self-management procedures. Securing additional funding will help sustain the coalition's efforts in later years (See scoring instruction DA2).
- ✓ The Community Health Center's quality care coordinator worked with staff to develop an action plan. The action plan will be a guide for future changes to clinic practices (See scoring instruction DA1.4).

Examples of items that are not scored as Development Activities:

- ✓ The Director of the Health Care Coalition scheduled a series of monthly meetings with funding agency for ongoing strategy development. (The results of the meetings would eventually be coded as a Development Activity, but not until they actually occurred. See scoring instruction DA1.1 and DA1.2. Entry would be scored as O)
- ✓ School board members met to discuss a review of literature on risk factors related to the problem. (This is not a Development Activity since it was not done by members of the initiative. See scoring instruction DA1.3. Entry would be scored as an O unless school board members are part of the initiative.)

- ✓ The quality care coordinator from the Community Health Center gave a presentation to the network of providers to train about the importance of quality care model. (This is a Service Provided since it involves providing information and communications to community/system members outside the initiative.)

Documentation Instructions:

When writing a description of a Development Activity:

Description Component	Example
<u>Who</u> was involved in this product or result?	<i>Several community health center staff members ...</i>
<u>What</u> is the product or result of planning?	<i>...developed an evaluation instrument to be administered to patients.</i>
How will the community or effort benefit from this product?	<i>...this instrument will help members evaluate patients' perception of services in the clinic.</i>

Services Provided (SP)

General Definition: The delivery of information, training, material goods, or other activities by members of the initiative to people in the community/system. Services provided include classes, programs, services (e.g., screenings), workshops, material goods, or other services. Records on services provided might include the number of classes or programs conducted and the number of participants in those classes/programs.

Coding Instructions:

- SP1 Services provided must meet all of the following criteria:
 - SP1.1. have occurred and/or are ongoing, and
 - SP1.2. are information, training, material goods, or other services, and
 - SP1.3. are sponsored or facilitated by members of the initiative, and
 - SP1.4. are delivered to the community served by the initiative.
- SP2 When a *new* program is initiated (i.e., a community/system change), its first instance of implementation should also be coded as a Service Provided if it meets the criteria for SP. Any continuing instances of programs are coded as Services Provided only.
- SP3 If a presentation (e.g., to the clinic director), is intended to bring about a community/system change, then it should be coded as a Community Advocacy activity (CA). If a presentation is intended to deliver information or educate staff about the health goal (e.g., quality care practices), then it should be coded as a SP.
- SP4 Each distinct Service Provided (e.g., each new class or workshop) should be entered and coded separately in the ODSS. Subsequent delivery of the service should be totaled for each month and the total number entered into the ODSS.
- SP5 Events to plan services (e.g., meetings to decide the content of a class) are coded as Other.
- SP6 Media communications that provide information about the initiative's issue and ways to address it are scored as an SP if facilitated/ contributed by the initiative (e.g., media or social marketing campaign facilitated/ contributed by the initiative).
- SP7 Efforts to promote availability of services or conduct outreach are examples of SPs.
- SP7 Excluded as Services Provided are Dissemination Efforts (DE) and Resources Generated (e.g., a grant or donation to the initiative) that occur internal to the initiative.

Examples of Services Provided:

- ✓ The Community Health Center hosted a class about diabetes management that was provided by the center's bi-lingual certified diabetes educator. (This is a Service Provided since the session provided a service related to the efforts mission. See coding instructions SP1 and SP3.)
- ✓ The Community Health Coalition held diabetes prevention workshops for community members in the regional area. (This is a Service Provided because it is a workshop related to reducing risks for health problems targeted by the initiative. See coding instructions SP1 and SP3.)
- ✓ The Community Health Center and Community Health Coalition co-hosted an outreach screening event at a local church to promote early identification of diabetes. (This is a Service Provided since it is a service related to the goals and objectives of the initiative. See coding instructions SP1 and SP3.)
- ✓ The Community Health Center staff trained local school wellness staff to identify risk factors for diabetes. (This is a Service Provided since it is a training program delivered by the initiative related to the goals and objectives of the group. See coding instructions SP1 and SP3.)

Examples of items not coded as Services Provided:

- ✓ The Community Health Center developed a mailing list of potential workshop attendees. It required several meetings to complete this process. (This is planning for a future service. See coding instruction SP1.1. This item would be coded as O.)
- ✓ The Community Health Coalition has planned diabetes prevention education workshops for the community members. The plan is to reach 1,000 community members. The workshops will be conducted in the month of March. (This service has not yet occurred. See coding instruction SP1.1. This entry would be coded O.)
- ✓ The Quality Care Coordinator presented a proposed change to clinical practices to the executive director and other providers. The director and providers will consider whether to approve this change in practice. (This service was intended to bring about a community change. See coding instruction SP3. This entry would be coded as a CA.)

Documentation Instructions:

When writing descriptions of Services Provided, be sure to include:

Description Component	Example
<u>Who</u> was involved in providing this service?	<i>John and Carol from the Community Health Coalition, and Pastor Roberts from the Ministerial Alliance...</i>
What information, instruction, or skills development was provided?	<i>...led an informational session about ways to integrate wellness practices into faith organizations</i>
<u>Who</u> received the services?	<i>Participants of the session/workshop were 50 members of the Ministerial Alliance.</i>

Dissemination Effort (DE)

General Definition: Conveying information about **the initiative and its accomplishments to audiences outside the community to be served.**

Coding Instructions:

- DE1 Dissemination effort must meet all of the following criteria:
- DE1.1. have occurred (not just planned), and
 - DE1.2. be an instance of conveying information through presentations, publications, dissemination of policy briefs or other dissemination outlet or other distribution of materials and
 - DE1.3 efforts are directed at audiences (e.g., other practitioners, researchers) outside the community to be served and
- DE2 Dissemination Effort is counted if it features the initiative and its accomplishments.
- DE3 Information disseminated through a variety of media such as newsletters newsletter articles, presentation, print media, publications, radio, social media, etc. can be counted as Dissemination Effort.

Examples of Dissemination Effort:

- ✓ A newspaper article described the Health Coalitions recent implementation of its diabetes –self-management training which began this week. Chris Smith from the initiative was interviewed for this article and the initiative was mentioned by name. (See coding instructions DE1.)
- ✓ A presentation on the effects of the mobile self-management prompts on self-management behavior was made at the American Public Health Association annual meeting in Boston. (See coding instructions DE1.)

Examples of items not coded as Dissemination Effort:

- ✓ An article on a substance abuse prevention effort in Washington, DC public schools appeared in the local newspaper. The article featured quotes from the superintendents of five DC schools. (This is not an instance since the program was not connected to the initiative. See coding instructions DE1.3. This entry would be coded O.)
- ✓ The local health department developed and distributed a public service announcement on the importance of getting diabetes screening. (This is not an instance since the press release was sent but the story has not yet been picked up by the media. See coding instruction M1.1. Entry is coded O.)

Documentation Instructions:

Record the instances, type of information, intended audience, mode of delivery, and the amount of information disseminated (i.e., column inches of print media, minutes of broadcast media) for each dissemination effort.

When writing descriptions of Media Coverage:

Description Component	Example
What <u>type</u> of media coverage occurred?	<i>A newspaper article...</i>
What <u>topic</u> and/or initiative was covered?	<i>...presented the results of the expanded coverage of diabetes self-management instruction by insurance companies</i>
<u>How</u> was the initiative involved? (Must be either featured by name OR facilitated by a member of the initiative)	<i>Carol Jones (member of the initiative) was interviewed for this newspaper article.</i>

Resources Generated (RG)

General Definition: Acquisition of funding or other resources for the initiative through grants, donations, or gifts in kind. Resources generated can include money, materials, and people's time.

Coding Instructions:

- RG1 Resources generated must meet all of the following criteria:
 - RG1.1. have occurred (not just pending or planned), and
 - RG1.2. be in the form of money, materials, or people's donated time, and
 - RG1.3. be used to facilitate activities related to the goals and objectives of the initiative, and
 - RG1.4. be allocated to the initiative or one of its partners, and
 - RG1.5. are facilitated by individuals who are members of the initiative or are acting on behalf of the initiative.
- RG2 Estimate the value of the donated time by calculating the hourly market value of the services (e.g., professional wage, minimum wage) multiplied by the number of hours of service.
- RG3 Estimate the market value of donated materials. For example, if the newspaper donated advertising space for a special event, determine the market value of that advertising space.
- RG4 Count grant monies when they are disbursed. For example, if a 5-year, \$500,000 grant was awarded and disbursed at \$100,000 per year, count one instance of \$100,000 every year over the grant period.
- RG5 Each separate grant or donation is considered to be a unit of resources generated.

Examples of items coded as Resources Generated:

- ✓ The Community Health Coalition was awarded a \$150,000 grant from the Kresge Foundation. These funds will be used to develop and field-test an innovative self-management pilot project workshop. (New grant received. See coding instruction RG1.2)
- ✓ Whole Foods Market donated fruits and vegetables for the initiative's education program. (Donations provided to the initiative for its projects. See coding instruction RG1)
- ✓ The county health department assigned John Thompson, their research associate, to serve as a free consultant for the Community Health Coalition's evaluation effort that is examining program effectiveness. (Staff time was donated. See coding instructions RG1.2 and RG2)
- ✓ A copying machine was donated to the initiative. This machine will be used for administrative tasks associated with the Community Health Coalition's efforts to prevent diabetes. (Donation of materials for the initiative. See coding instruction RG1.2).

Examples of items that are not coded as Resources Generated:

- ✓ The Community Health Center's development director submitted a grant proposal to the State Bureau of Primary Care. This grant will fund the development of a diabetes care management program. (This is not a Resources Generated as the application has not yet resulted in a grant. See coding instructions RG1.1.. Entry would be coded O.)
- ✓ A partner received funding for activities not related to the initiative. (Resources Generated must be used to facilitate activities related to the goals and objectives of the initiative. See coding instruction RG1.3.)

Documentation Instructions:

When writing Resources Generated descriptions:

Description Component	Example
What was the resource generated? (the money, material, or donated time)	<i>A local grocery store donated food to the Community Health Center.</i>
What will the resource be used for?	<i>These foods were used to conduct food demonstrations during diabetes self-management classes.</i>

Not Coded, Other (O)

General Definition: Additional activities that are recorded for which no code or definition has been created.

Activities which the group desires to track but that do not fall under one of the group's existing codes should be coded with an "O."

Coding Instructions:

O1 If an item is coded as an "O," it is not also coded as something else.

Appendix C

Monitoring and Evaluation Plan

Grantee Name:					
Broad Project Goal:					
ToD Goals/ Evaluation Questions	Indicators/Target	Source/Measure ment method	Frequency of measure- ment	Responsible Person	Related Activities
Goal 1: Improve diabetes self-management education and support					
Is diabetes self-management education and support being implemented?	#/type Education sessions	--Project records --Documented in ODSS (Community and System Changes/Services Provided)	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-making and Reports to BMSF
	#/type Personalized messages				
	#/type of Support Services				
	% of patient adherence (i.e., DSME/S; medications)				
Type of Graph (from ODSS): *Total # of Self-Management Education and Support sessions delivered - Cumulative Chart					

Goal 2: Improve access/linkage to care					
Is there improvement in access/linkage to care?	# of undiagnosed patients who are screened	--Project records --Documented in ODSS (Community and System Changes/Services Provided)	Summarized in ODSS after each available measurement (e.g., quarterly, annual)	Project documenter	--Bi-annual sense-making and Reports to BMSF
	#/type Navigation services				
	# of diagnosed patients who access services or are reattached to services; other project-specific measures				
	#/type lay health workers trained	--Project records --Documented in ODSS (Development Activities)	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-making and Reports to BMSF
	#/type lay health workers engaged with patients				
	# community support referrals				
	# of general population reached through outreach activities*				
	Type of Graph (from ODSS): *Total # of Access/Linkage to Care services delivered – Cumulative Chart *Total # of Lay Health Workers trained – Cumulative Chart Total # of Undiagnosed Patients who get Access to Screenings – Cumulative Chart (BSC)				

Total # of Diagnosed Patients who get Access to Services – Cumulative Chart
Type of Patients getting Access to Screening/Services by Racial/Ethnic Group

Goal 3: Improve quality of care					
Is there improvement in quality of care?	HEDIS/Practice measures (e.g., regular foot exams); Mental/behavioral health services; other project-specific measures	--Project records --Documented in ODSS (Indicators Database)	Summarized in ODSS after each available measurement (e.g., quarterly, annual)	Project documenter	--Bi-annual sense-making and Reports to BMSF
	# of visits to primary or specialist care (including behavioral				
	% enrolled patients receiving care according to guidelines				
Type of Graph (from ODSS): *Total number of community and systems changes related to QOC—cumulative chart					

Goal 4: Engage in community organization, mobilization and advocacy					
<i>Are community organization and mobilization efforts occurring?</i>	#/type of Development Activities	--Project records --Documented in ODSS (Development Activities)	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-making and Reports to BMSF
<i>Are advocacy efforts occurring?</i>	#/type of Community Advocacy	--Project records --Documented in ODSS (Community Advocacy)	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-making and Reports to BMSF
Type of Graph (from ODSS): *Total # of Community Advocacy Activities implemented – Cumulative Chart Type of Community Advocacy Activities implemented by Goal – Pie Chart					

Goal 5: Facilitate changes in health systems and communities					
<i>Is the initiative bringing about changes in health</i>	#/type of Health System Changes	--Project records --Documented in ODSS	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-

<i>systems and health service delivery systems?</i>	#/type of Health Service Delivery System Changes	(Community/Syst em Change)			making and Reports to BMSF
	#/type of Policy Changes				
<i>Is the initiative bringing about changes in communities related to the mission?</i>	#/type of Community Changes	--Project records --Documented in ODSS (Community/Syst em Change)	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-making and Reports to BMSF
	#/type of Policy Changes				
<i>Type of Graph (from ODSS): *Total # of Community/System Changes implemented over time – Cumulative Chart</i> <i>*Type of Community/System Changes by Goal Addressed – Pie Chart</i> <i>Type of Community/System Changes by intervention component – Pie Chart</i> <i>*Type of Community/System Changes by Setting/Sector engagement – Pie Chart</i>					

Goal 6: Improve self-management, behavioral, and clinical health outcomes					
<i>Is there improvement in self-management outcomes?</i>	Level of diabetes self-care behaviors	--Project records --Documented in ODSS (Indicators Database)	Summarized in ODSS after each available measurement (e.g., quarterly, annual)	Project documenter	--Bi-annual sense-making and Reports to BMSF
	Level of treatment adherence; other project-specific measures				
<i>Is there improvement in preventive health behaviors for participants?</i>	Level of self-reported health behaviors (e.g., physical activity, diet, goal setting*)	--Project records --Documented in ODSS (Indicators Database)	Summarized in ODSS after each available measurement (e.g., quarterly, annual)	Project documenter	--Bi-annual sense-making and Reports to BMSF
<i>Is there improvement in clinical health outcomes for participants?</i>	HbA1c levels; BMI; Diabetes Distress (e.g., SF-12); Depression Measure (i.e., PHQ 9); other project-specific measures (e.g., reduction in comorbidities*)	--Project records --Documented in ODSS (Indicators Database)	Summarized in ODSS after each available measurement (e.g., quarterly, annual)	Project documenter	--Bi-annual sense-making and Reports to BMSF

Type of Graph (from indicators): Change in knowledge/skill of patient diabetes self-care behaviors—Survey
 Proportion of patient adherence (e.g., medication, DSME)—Patient records
 Change in health behaviors (e.g., physical activity—Survey
 Change in clinical values (e.g., HbA1c, BMI, distress, depression, comorbidities)—Patient records

Goal 7: Improve population health

<i>Is there improvement in population health outcomes in communities?</i>	Diabetes-related ED visits and hospitalizations,; other project-specific measures	--Project records --Documented in ODSS (Indicators Database)	Summarized in ODSS after each available measurement (e.g., annual)	Project documenter	--Bi-annual sense-making and Reports to BMSF
<i>Is the initiative reaching priority populations?</i>	# of high burden patients served #/type Outreach activities to priority populations	--Project records --Documented in ODSS (Indicators Database)	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-making and Reports to BMSF

Type of Graph (from indicators) : #/Rate of Diabetes-Related ED Visits – Frequency Chart
 #/Rate of Diabetes-Related Hospitalizations – Frequency Chart
 Type of Patients entering ED/Hospital by Racial/Ethnic Group Served – Pie Chart

Goal 8: Improve health equity

<i>Is the initiative reaching populations disproportionately affected and/or those living in medically underserved areas?</i>	# of high burden patients served (e.g., low-income, African American, Native American, etc.) # of medically underserved patients reached #/type of outreach activities adapted to priority populations # of lay health workers from priority populations trained # of activities targeting priority populations # of high burden patients screened # of high burden patients who access services	--Project records --Documented in ODSS (Development Activities, Services Provided, Dissemination Activities, & Indicators Database)	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-making and Reports to BMSF
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	# of high burden patients reporting preventive health behaviors (e.g., physical activity, diet)				
	# of high burden patients reporting self-care behaviors				
	# of high burden patients reporting treatment adherence				
	#/type of dissemination efforts tailored for priority populations				

Type of Graph (from ODSS and Indicators): *Percent of those served by race or ethnicity – Pie Chart
 #/Proportion of patients enrolled in program from racial/ethnic groups that show improvements compared to whites. [In specific indicators; e.g., HbA1c levels; Other indicators of success (e.g., HEDIS measures) by race or ethnicity.] – Frequency Chart

Goal 9: Engage in dissemination efforts

Are dissemination efforts occurring?	#/type of Dissemination Efforts (i.e., publications, presentations, reports, other communications)	--Project records --Documented in ODSS (Dissemination Efforts)	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-making and Reports to BMSF
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Type of Graph (from ODSS) *Total # of Publications, Presentations, and Communications– Cumulative Chart

*Types of dissemination efforts – Pie Chart

Goal 10: Sustainability of the initiative and interventions

Is the initiative generating resources to address the mission?	#/type of Resources Generated	--Project records --Documented in ODSS (Resources Generated)	Summarized monthly in ODSS	Project documenter	--Bi-annual sense-making and Reports to BMSF
--	-------------------------------	---	----------------------------	--------------------	--

<i>Are community/ system changes sustained?</i>	% of Community/ System changes in place at end of project; mode of sustainability used	--Project records --Web-based survey of sustainability	--Once, at conclusion of project	Project documenter, with input from group members	--Project closing sense- making and Final Report to BMSF
<p><i>Type of Graph (from ODSS and post-project survey):</i> *Total # of Resources Generated (e.g., Grants, In-Kind) – Cumulative Chart</p> <p>*% of Community/System Changes Ongoing at End of Project - Frequency Chart</p>					

Appendix D

Key Informant Interview Protocol**Key Informant Interview (Baseline): SECTION B: KEY INFORMANT ORGANIZATION INFORMATION**

TIME BEGAN SECTION B

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 AM / PM

This interview has two sets of questions. First, I will ask you to list the different community programs, policies, practices, or services that have been implemented in your organization as part of the American Association of Diabetes Educators project, as well as any advocacy, development, dissemination, and resource generating activities that may have occurred. Second, I will ask you some more detailed questions about each identified community program, policy, practice, or service. I would like to also add that although we will ask questions about specific types of activities, we do know that there is some variation across different projects and you may have not engaged in a type of activity and we do not have the expectation that you *should have* engaged in that activity. We are trying to ask about a broad range of activities to make sure we get as clear a picture as possible.

I would like to begin by talking specifically about what **your organization** (insert organization name) has done to implement the American Association of Diabetes Educators project. *Would you describe some of the activities you have done to implement the project at your site or what you regard as the important accomplishments to date?*

Now, I would like to ask more questions about specific types of activities. We are attempting to document what programs, policies, and services that have been implemented in the community since the beginning of the American Association of Diabetes Educators' Project (approximately June 2011), whether ongoing or discontinued.

FOR **EACH Activity** INDICATED BELOW (IN QUESTIONS Q.B2 – Q.B9), COMPLETE A NEW PROGRAM/POLICY LEVEL MODULE (**SECTION C**).

1. What specific **programs** were implemented within or by your organization or as a result of your organization's advocacy efforts to promote the goals of the DCCP project?

Please consider that a "program" may include changes at the community or the organizational level.

POSSIBLE Prompts:

- Have you delivered any new outreach sessions to promote diabetes screening or other patient recruitment efforts within your community?
- Has your organization implemented modifications to any previously existing programs?

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

2. What specific **policies** were implemented within or by your organization or as a result of your organization's advocacy efforts to promote the goals of the DCCP project?

Possible Prompts:

- Have policies been implemented within your community(ies) that will improve clinical markers for diabetes, such as a tobacco-free grounds policy, as a result of the work of your organization?

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

3. What **practices** were implemented within or by your organization or as a result of your organization's advocacy efforts to promote the goals of the DCCP project?

Possible Prompts:

- Has your organization developed new practices or have existing practices that will improve patient quality of care?

1. _____

2. _____

3. _____

4. _____

5. _____

 ____ 6. _____

4. What **services** were implemented within or by your organization to promote the goals of the DCCP project?

Possible Prompts:

- Has your organization conducted diabetes education sessions among program patients?

 ____ 1. _____

 ____ 2. _____

 ____ 3. _____

 ____ 4. _____

 ____ 5. _____

 ____ 6. _____

5. What activities were conducted by your organization to **convey information** related to the the goals of the Whittier Street DCCP project to audiences outside of the served community(ies)?

Possible Prompts:

- Have you presented lessons learned from your initiative at a national conference?

 ____ 1. _____

 ____ 2. _____

 ____ 3. _____

 ____ 4. _____

 ____ 5. _____

 ____ 6. _____

6. What activities were conducted within or by your organization **acquire resources** for the initiative through grants, donations, or gifts into promote the goals of the DCCP project?

Possible Prompts:

- Have you received funding or donated resources in-kind to sustain the work of your initiative?

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. What **actions** were taken to produce a new or modified program or policy, or practice in the community or system within or by your organization to promote the goals of the DCCP project?

Possible Prompts:

- Has your organization established any new partnerships or collaborations that will produce new or modified programs, policies, or practices?

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

THIS FORM REPRESENTS THE **ONE MODULE** THAT SHOULD BE COMPLETED FOR **EACH INDIVIDUAL ACTIVITY / ACCOMPLISHMENT** (AS LISTED IN SECTION B).

NOTE: FOR EACH ACTIVITY/ACCOMPLISHMENT LISTED IN SECTION B, ASK QUESTION C1 FOR EACH FIRST AND THEN RETURN TO COMPLETE THE RELEVANT QUESTIONS IN SECTION C FOR THE RESPECTIVE ACTIVITY. COMPLETE SECTION **C2 FOR COMMUNITY/SYSTEM CHANGE, COMMUNITY ADVOCACY, AND SERVICES PROVIDED**, **C3 FOR COMMUNITY ADVOCACY**, COMPLETE SECTION **C4 FOR SERVICES PROVIDED**, COMPLETE SECTION **C5 FOR DISSEMINATION EFFORT**, AND COMPLETE SECTION **C6 FOR RESOURCES GENERATED**.

SECTION C

GENERAL (PROGRAM/POLICY) QUESTIONS

- C I would like to understand the specific details about [state the
1. name of the activity / accomplishment.] Could you please describe the program by telling me **who**, did **what**, **when**, **with whom**, and **toward what goal**.

WHO
[Organization/Program
Reps/Coalition]
implemented or led the
activity?

WHAT did they
do? [Ask: What method or
approach was used by this
program or policy?]

WHEN did they
do it? [Ask: What was the
date of the activity?]

WITH WHOM
did they do it? [Ask: With
whom was this activity
performed?]

To what end was
this activity directed? [Ask:
What was the purpose of
this activity?]

Was this the first
time this activity has
occurred? : ☐ ☐

Yes

No

CONTINUE WITH SECTION C QUESTIONS ONLY AFTER QUESTION C1 HAS BEEN ANSWERED FULLY FOR EACH ACTIVITY LISTED IN SECTION B.

NOTE: COMPLETE SECTION C2 FOR **COMMUNITY/SYSTEM CHANGE, COMMUNITY ADVOCACY, AND SERVICES PROVIDED**

Questions re: Goals and Outcomes ask ONLY as needed			
GOALS			
2.1.	What goal(s) were addressed by this activity? Was the goal to....		Improve diabetes self-management..... Improve access/linkage to care Improve quality of health care..... Increase preventative health behaviors..... Improve clinical health outcomes Other N/A
2.2.	What behavioral outcome(s) were addressed by this activity?		Adherence to medication regimen Annual health screenings Conducting self-blood glucose monitoring..... Conducting daily foot checks..... Consumption of fruits and vegetables Consumption of sugar-sweetened beverages Other N/A
2.3.	What clinical-health outcome(s) were addressed by this activity?		A1c levels Blood pressure LDL cholesterol..... Triglycerides..... Healthy weight/BMI..... Other N/A
2.4.	Which population-health outcome(s) will be affected or targeted by this activity.		Age-adjusted percent adults with diagnosed diabetes Diabetes-related ED visits and hospitalizations..... Percent obese Percent of adults consuming less than five daily servings of fruit and vegetables..... Percent of adults not meeting recommended level of vigorous and moderate physical activities.....

			Percent of adults no leisure-time in past 30 days None N/A
2.5.	Which behavior change strategies were used by this activity?		Providing information and enhancing skills..... Enhancing services and support Modifying access, barriers, and opportunities Changing consequences Modifying policies and broader systems Other N/A
2.6.	Describe the duration of this activity.		More than once One time event..... Ongoing
2.7.	Estimate the number of people in the community who took part in the program (or experienced the policy).		Patients/Consumers Allied Health Professionals..... Community Members Human Service Providers..... Lay Health Workers ... Others
2.8.	Estimate the percentage of people in the community who took part in the program (or experienced the policy).		_____ _____ _____
2.9.	What primary setting or sector did this activity most affect?		Businesses/Workplac es..... Childcare/Preschool sites Criminal Justice Faith-based organizations..... Federally Qalified Health Center Food retailers Health department (local) Health department (state) Home

			Hospitals Other government organizations..... Media Neighborhood Parks and recreation department Primary care offices.... Schools Social service agencies Transportation..... Youth organizations.... Other
2.10.	In what zip code did this activity or accomplishment occur?		_____ _____ _____

2.11.	At what specific address did this activity or accomplishment occur?		<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
2.13.	What were the targeted groups whose behavior was to be change by the activity?		Children Parents/Caregivers Community members Business people Government elected/appointed officials Child care providers Food and beverage providers Health care providers..... Media Patients Parks and recreation personnel..... School personnel Other
2.14.	What were the primary racial/ethnic groups actually served by this activity?		White Black/African American American Indian/Alaska Native Latino Native Hawaiian/Pacific Islander..... Asian Other All
2.15.	FOR KU USE ONLY: Toward what social determinants or contributors to health disparities was the effort directed?		Access to healthcare ... Community power/influence Crime/safety Education Employment Housing..... Poverty/income inequality Racism/discriminat ion Social cohesion/connectedness..... Transportation.....

			None
			Other
2.16.	FOR KU USE ONLY: At what socio-ecological level is this activity intended to have the most effect?		Individuals Family/Relationships Organizations Community Broader system All
2.17.	FOR KU USE ONLY: At what geographic level is this activity intended to have the most effect?		Local Organization County Region State All
NOTE: COMPLETE SECTION C3 FOR DISSEMINATION EFFORT			
3.1.	Date of dissemination effort?		_____ _____ _____
3.2.	What type of information was disseminated?		How-to information Policy brief Program information Research/evaluation information Other
3.3.	What was the intended audience ?		Appointed/elected officials Health care providers Patients Peers/family Researchers Other
3.4.	What mode of delivery was used in the dissemination effort?		Newsletter Presentation Print media Professional publication Newspaper Radio Social media Television Text message Web-based Other

3.5.	Amount of information disseminated.		_____

NOTE: COMPLETE SECTION C4 FOR RESOURCES GENERATED			
4.1.	What type of resource is this?		Cash Grant In-kind..... Volunteer time Other
4.2.	What organization or individual provided this resource?		_____ _____ _____
4.3.	Amount of Grant/Cash? (round to the nearest dollar amount)		_____ _____ _____
4.3.	Amount of in-kind resources contributed in dollars? (round to the nearest dollar amount)		_____ _____ _____

Appendix E

Community Health Ambassador Job Position**WHITTIER STREET HEALTH CENTER****Community Health Ambassador****BMS - Together on Diabetes****SUMMARY OF POSITION:**

This position is a part of an integrated and comprehensive community service strategy at Whittier Street Health Center (WSHC) connecting hard-to-reach Boston residents, adult African Americans women living in Public Housing with diabetes for diabetic education and screenings in the community to help motivate community members affected by diabetes to access care.

Under the direct supervision of the Diabetic Case Manager, the Community Health Ambassador will provide a range of activities including community outreach and in reach, advocacy, health education, serving as a health role model and teamwork.

TYPICAL PHYSICAL DEMANDS /CONDITIONS:

Requires sitting, some bending, stooping, stretching and walking. Requires eye-hand coordination and manual dexterity sufficient to operate a keyboard, photocopier, telephone, calculator, and other office equipment. Requires normal range of hearing and eyesight to record, prepare, and communicate appropriate forms and reports.

ESSENTIALS DUTIES:

- Health Ambassador will serve as a client advocate to assist clients seeking or requiring services within and outside the health center.
- Coordinate outreach in community as needed to promote the BMS Together on Diabetes Program.
- Participate in required team meetings and activities both internally and externally.
- Maintain good personal image and represent the best interest of WSHC and its stakeholders including program participants, community groups, collaborating agencies, and the community-at-large.
- Facilitate educational workshops/groups reaching community groups.
- Maintains accurate records of activity including numbers of events and referrals/enrolls and database or participants.
- Provide diabetic health workshops within the community (public housing developments). Provide education/workshops to 50 individuals in a year.
- Other duties as assigned.

REQUIREMENTS

- Currently reside in one of the Public Houses
- Diabetes patient with well controlled clinical outcomes
- Working knowledge of diabetes
- Relevant experience facilitating outreaches
- Knowledge of available community resources
- Good oral presentation skills

EDUCATION

- Community Health Worker certification is preferred or candidate should be willing to obtain certification within 6 months of accepting offer.

Appendix F

Diabetes Self-Management Education Curriculum Topics

WHITTIER STREET HEALTH CENTER
Comprehensive. Compassionate. Community.

Diabetes Self-Management Education Curriculum**Overview:**

The following diabetes self-management education (DSME) curriculum is for patients with type 1 or type 2 diabetes, or for those who are at risk of developing diabetes. Education is delivered by a WSHC instructor in any of the following capacities: a scheduled office visit with a physician, nurse practitioner, or certified diabetes educator, diabetes case manager; during a Diabetes Clinic office visit; a scheduled DSME group session; or during a Diabetes Group medical office visit.

Curriculum Topics:

1. Diabetes disease process and treatment options
2. Incorporating nutritional management into one's lifestyle
3. Incorporating physical activity into one's lifestyle
4. Using medications safely and for maximal therapeutic effects
5. Monitoring blood glucose/other parameters and using results
6. Preventing, detecting and treating acute complications
7. Preventing, detecting, and treating chronic complications
8. Developing personal strategies to promote health and behavior change
9. Developing personal strategies to address psychosocial issues/concerns

Evaluation:

Each instructor will assess a patient's competency of each topic's learning objectives through direct discussion, question/answer, and/or utilizing a pre- and post test and will be included in the written documentation of the learning session that the patient attended.